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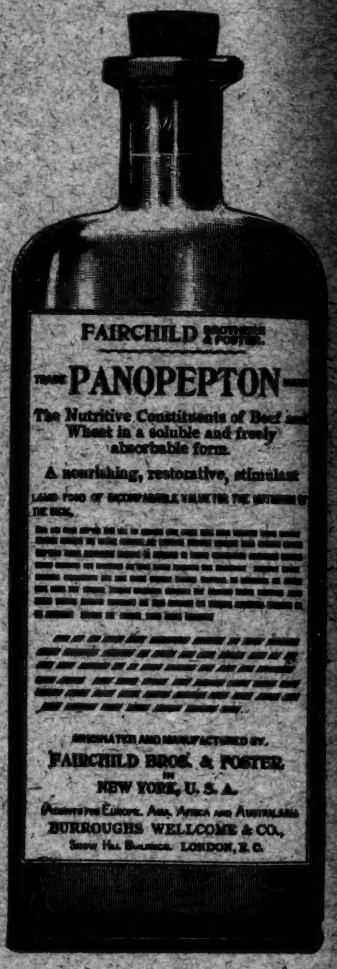
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Notes on Military Orthopaedics.

II. ON SUTURE OF NERVES, AND ALTERNATIVE METHODS OF TREATMENT BY TRANSPLANTATION OF TENDON.

BY

LIEUTENANT-COLONEL ROBERT JONES, CH.M., F.R.C.S.I. (HON.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

THERE are few problems more urgently needing solution at the present moment than those involved in the treatment of limbs disabled by injuries involving nerves. The conditions vary and are often very complex. The nerve may be irretrievably injured beyond all hope of suture; it may be entangled in cicatricial tissue; one or more of the muscles it supplies may have suffered grave lesions, varying from partial to complete destruction; the tendons or muscles themselves may be bound down by adhesions, or the joint or joints the muscles govern may be stiff or ankylosed, or held in a deformed position by a skin cicatrix, or more than one of these hampering conditions may be present. The simple condition, where the nerve or some of its fibres receive a clean severance, is exceptional.

If once these facts are realized it will require no argument to establish the proposition that certain orthopaedic problems must be mastered in connexion with the suture of nerves if proper restoration of motor function and of the normal efferent and afferent connexion between muscle and the central nervous system are to be secured. In certain fortunate cases the conductivity of the nerve is restored and good muscular function may result. In other instances, although the conductivity is restored, the function of the muscles and joint may not be regained because certain fundamental principles have been neglected. There are other cases in which the conducting power of the nerve is not properly restored, and yet others in which, owing to extensive destruction of the nerve, any attempt at suture would be futile. We must therefore be prepared with alternative methods in order to secure for the patient a satisfactory limb.

LATE SUTURE OF NERVE.

With regard, however, in the first place, to late suture of the nerve, certain general principles must be borne in mind. These are:

1. The correction of contractures of skin or muscle and all the anatomical constituents, from skin to bone, on the concave aspect—that is to say, on the side of the abnormal direction the contracture takes.
2. When possible, the freeing of joints from all adhesions and the restoration of the mobility of the joint in all cases where ankylosis is threatened.
3. The maintenance of the paralysed muscles in a position of relaxation throughout the period of recovery.
4. The practice of massage during the recovery, but without once allowing the relaxed muscles to be stretched.

In short, the principles and their application coincide with those I have so often emphasized in the treatment of poliomyelitis.[1]

1. *Freeing the Muscles.*

In the first place, it is necessary to free the muscles from all mechanical obstructions to their action. If this be not done they cannot respond to stimuli sent to them through the nerve, and therefore cannot in their turn send the answering afferent impulse which is necessary to bring the apparatus into proper working order. It is essential to dwell on this point, inasmuch as many operations are being performed while the muscles and joints are stiff. This stiffness is not due to the nerve injury, but to the consequences of trauma and sepsis affecting the muscles, tendons, blood vessels, nerves and ligaments about the joint. When we realize how anaemic an unused muscle becomes, we shall not delay in giving help to prepare it for the reception of nerve impulses.

2. *Mobility of Joint.*

In the second place, where the joint is threatened with ankylosis, every effort should be made to restore its function.

Operation on the nerves is doomed to failure if these fundamental principles be disregarded.

3. *Relaxation of Muscles.*

Thirdly, the importance of keeping the partially paralysed and overstretched muscles in relaxation during treatment has been so forcibly brought home in ordinary civil practice in the treatment of residual paralyses after poliomyelitis, lead palsy, injuries of the brachial plexus and of isolated nerves, that it should be scarcely necessary for me again to call attention to it. Nevertheless, visits to wards prove that this elementary orthopaedic measure is too frequently entirely omitted by surgeons who have performed suture of injured nerves. Thus we find men who have had the musculo-spiral sutured allowed to walk about with the hand dangling in palmar flexion instead of its being kept continuously in dorsiflexion! By letting the hand hang in palmar flexion the muscles supplied by the sutured musculo-spiral, which can only recover if kept relaxed, are allowed to become stretched. The result is that the fingers and hand do not regain, can hardly be expected to regain, full normal function. A similar grave error is perpetrated often in the case of the external popliteal nerve also, with the same disappointing result in the foot. Frequently I have noticed that the foot of a patient whose popliteal nerve has been sutured is allowed to remain in an equinus position! Sometimes, indeed, the operation is even performed while the tendo Achillis is contracted. Were it not so frequently happening I should feel ashamed to refer to this matter, but as it is happening I again urge surgeons who suture nerves to insist that the affected muscles be kept in complete relaxation until power returns. The most skilful operation performed on the most suitable case will prove a fiasco unless the affected muscles are continuously kept relaxed until recovery takes place.

In some cases it will be found not only that no provision is made for the muscle to be in the most favourable condition to respond to the earliest motor impulses which come through the block in the nerve, but, further, the mechanical condition of the muscle as to function seems to be entirely neglected, and suture of the nerve is performed when the paralysed muscle or the joint on which it acts is immobilized by cicatricial adhesions. If restoration of function is to follow nerve suture, the new axis cylinders growing through a cicatrix must of course be enabled to establish some sort of normal relation as to function with the end organs in muscle. If the muscle is mechanically disabled from making any response, it is absurd to hope for good functional result, even though the physiological processes of repair of the nerve be perfect. I desire to emphasize again the fundamental principle of procedure—namely, that the restoration of the mobility of joint and muscle must precede the operation of nerve suture. It is useless to attempt it otherwise.

4. *Voluntary Use and Massage.*

Fourthly, for precisely similar reasons, it is important that the patient should as soon as possible exercise the limb in normal movements. In the case of the lower limb this usually means the application of some apparatus designed to prevent strain on the recovering muscles while the patient is permitted a moderately free physiological use of his limb. In order to make the foregoing observations more lucid to those who have not followed my writings, which are based on the late Mr. H. O. Thomas's theory of "muscle lengthening," I will briefly indicate their tenor.

It is well, in view of the enormous number of injuries to nerves occurring in this war, to emphasize the fact that principles applicable in poliomyelitis are applicable here. When speaking, some years ago, of the results of acute poliomyelitis, I pointed out[2] that, though the disease might permanently destroy motor cells in the anterior horns of the grey matter, so rendering the muscles dependent upon them for ever useless, unless nerve transplantation might at some later date come to their rescue, yet *complete* destruction was fortunately the rarer condition. The clinical evidence afforded by rapid and

complete recoveries from complete paralysis and the very many partial recoveries proved that the motor cells concerned had suffered from temporary injury and had not been destroyed. Something had happened to make the muscle incapable of responding to motor stimulus. Whether this was to be attributed to the absence of afferent muscle-sense stimulus, as seemed probable, or whether it was due to some other cause, it was clinically certain that the nerve cells became partially inactive, not extinct, and that with appropriate treatment of the muscle or group of muscles functional activity could be reinstated. When a muscle governed by a live cell, or rather a group of live cells, fails to act, the disability may be spoken of as functional. Of this disability the great outstanding cause is overstretching of muscle fibres. A surgeon must recognize the difference between a truly paralysed muscle and a muscle which is over-stretched, and must know how to distinguish the one condition from the other.

The first essential of treatment is that the muscle or muscular groups must be prevented from being overstretched. If the wrist is, for instance, allowed to remain flexed the flexor muscles undergo adaptive shortening, and the extensors become overstretched and consequently placed at a mechanical disadvantage. This point is well illustrated by dropped wrist from lead poisoning. The lesion here may be either in the cord or in the nerve trunks; in either case the muscles cease to be controlled by their nerve centres, and the patient goes about with his wrist flexed by gravity, and the extensor muscles become disabled by continuous overstretching. As the condition is usually bilateral, an interesting experiment to test my contention may be made, if the case be of some weeks' standing, by placing one of the paralysed arms on a splint to keep the hand dorsiflexed. It will be found that recovery will be much more rapid on the side on which the extensors are relieved from overstretching than on the other neglected side. When a muscle is deprived of the natural motor stimuli, its condition from the point of view of function and nutrition is the same, whether the absence of stimuli be due to inactivity of the central nerve cells or to interruption of the conducting paths along the peripheral nerves. Its motor function is suspended, its nutrition suffers, it becomes anaemic, and it may, easily be overstretched by gravity, by the unrestrained action of the opposing muscle, or by these two forces acting in combination. If the wrist and fingers are kept in extreme dorsiflexion, the extensor muscles, thus relieved of strain, undergo adaptive shortening, and soon begin to respond to the constant stream of tonic stimuli sent to them by efferent impulses; later they come under the higher control of the voluntary centres.

FIG. 1.—Showing action of dorsiflexing after transplantation of tendons. Captain McMurray's case.

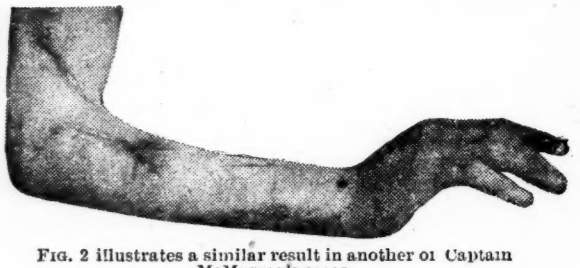


FIG. 2 illustrates a similar result in another of Captain McMurray's cases.

Another cause of persistence of functional disability is an unequal degree of recovery in opposing muscular groups.

Deflection of Body Weight.

A most potent factor for evil is what I have called the erroneous deflection of body weight, which, for physical reasons, operates chiefly in the lower limbs. If, for example, there be weakness in the tibial group and the patient be allowed to walk, the valgoid deformity will constantly increase, the tibial muscles will be more and more stretched, adaptive contraction will affect the peronei, and structural alteration will ensue in the tarsal bone, terminating in a troublesome flat-foot. All these untoward results may be avoided by simple treatment on sound scientific principles; a little alteration of the boot which, by raising the inside of the heel of the boot, will deviate pressure from the inner to the outer side of the foot, may suffice. When we have to deal with a group of muscles in which the power is only slightly impaired, the muscular balance may be restored by over-developing the weaker group. If, for instance, the peronei are weak, but the foot can quite easily be placed in the everted position, then massage and exercises may reasonably be expected to succeed. But if the foot cannot be everted because of adaptive shortening of the tibial tendons, then massage and exercise of the peronei will be perfectly useless until such time as the deformity has been corrected and the overstretched muscles kept relaxed for a sufficient period to permit them to recover by interstitial shortening.

LATE RECOVERY OF MUSCLE POWER.

But before any operations are performed affecting the mobility of a joint, every use should be made of available muscle power. No surgeon should operate on these cases until he has fully satisfied himself whether or no it be possible to restore the apparently paralysed muscle. Neglect of this precaution produces such a distressing occurrence as the unexpected recovery of muscles which were ignored because assumed to be paralysed. For example, a patient was brought to me once with a partially ankylosed knee. The operation of arthrodesis had been performed with a view of bringing about bony ankylosis. As an arthrodesis the operation had failed, for the knee had a short range of movement. As an experiment, illustrating the principle we are discussing, it was very successful, because the quadriceps was acting with considerable strength. Prolonged fixation had relieved the quadriceps from all strain, and restoration of function resulted. This case exemplifies the mistake of taking for granted that a muscle is paralysed without first making quite certain that it is *really* paralysed. It is only possible to make quite certain by relaxing the muscle and thus putting it into the position most favourable to recovery for a sufficient length of time. Electrical tests cannot be relied upon to give this information.

Treatment to Promote This.

The first stage of treatment is the correction of existing deformity. When deformity has been corrected the limb should be kept immovable until the ligaments, muscles, and even bone have become of normal length and shape. The continuity of treatment must be maintained or a relapse will result. This point is fundamental, and neglect to observe it spells failure, as the slightest stretching of a muscle on the point of recovery disables it again. All the good work may be thwarted by a single indiscretion. I cannot emphasize this point too strongly. For instance, let us take the case of a drop-wrist which has been placed in a splint designed to dorsiflex the hand and wrist. The position must be constantly maintained. The hand must

DIAGRAMS ILLUSTRATING TRANSPLANTATION OF TENDON INTO TENDON UNDER VARIOUS ANATOMICAL CONDITIONS.

FIG. 3 A.—Showing the tendon which is to be transplanted about to be passed through a tunnel in the other tendon. The tunnel is being dilated to receive the transplanted tendon.

FIG. 3 B.—Transplant in position. The angulation is dealt with as shown in Fig. 3 C.

FIG. 3 C.—In order to overcome angulation a slit is made in the upper part of the receiving tendon, which is then wrapped round the transplanted tendon.

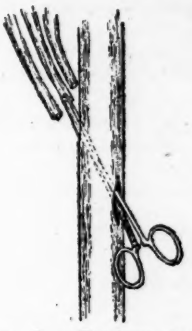


FIG. 4 A.—Tendons about to be pulled through another before suturing.

FIG. 4 B.—The divided ends of three tendons passed through another tendon in its course.

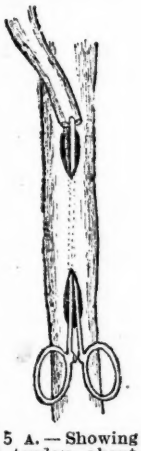


FIG. 5 A.—Showing transplanted tendon about to be passed along a tunnel in the receiving (active) tendon.

FIG. 5 B.—Tendon passed along course of active tendon.

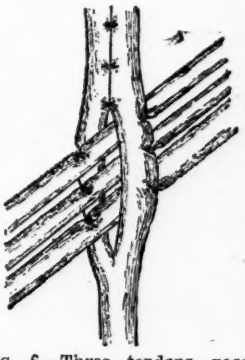


FIG. 6.—Three tendons passed through another tendon, which has been split to receive them.

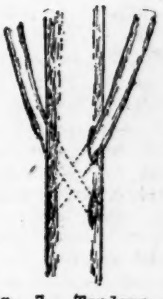


FIG. 7.—Tendons inserted into either side of active tendon.

not be allowed to flex for a single moment until recovery has occurred. Even while the patient washes, the hand must be held dorsiflexed.

The clinical test of the recoverability of a muscle, therefore, depends on an experiment. Let it be kept for a prolonged period—for at least six months—in a position of relaxation. This test should always be made before condemning any muscle, no matter how long the period for which it may apparently have been paralysed. When, therefore, one reads in textbooks statements to the effect that we are to despair of the return of power after a certain length of time, we can quite well afford to ignore the advice unless in addition to this time test there has been an uninterrupted muscular relaxation during that time.

These are views which I have without ceasing urged upon my professional brethren as applicable to infantile paralysis. They are equally applicable, with certain modifications, in the case of gunshot injuries. It is obvious that in infantile paralysis long mechanical treatment can do no harm. This is not so in the case of a soldier in whom a nerve has been injured. If suture is to give any promise of success there must be a limit to conservative methods. In any case, an exploration of the nerve is a harmless procedure.

TENDON TRANSPLANTATION IN GUNSHOT INJURIES OF NERVES.

In recommending tendon transplantation in gunshot injuries I have profited by the experience gained in anterior poliomyelitis. I have frequently performed tendon transplantation with success in the adult in cases in which isolated nerves have been destroyed. Similarly unrecorded cases have been operated upon by my friends Mr. Thelwall Thomas and Mr. Bickersteth. At the Military Orthopaedic Hospital, Liverpool, my colleague, Captain McMurray, has at this moment three successful cases in which transplantation has been done for musculo-spiral paralysis. As I have previously indicated, the object of a transplantation is to improve or restore muscular balance. It is not justified unless it improves function. There is little satisfaction to a patient if the transplanted muscle merely responds to faradism, or even makes a feeble movement by the effort of the will. It must be, or give the promise of becoming, a substitute for the muscle it supplants. It can only be judged by its ultimate usefulness.

A tendon may be transplanted in order to restore the balance between opposing groups of muscles by helping a redistribution of power, or its attachment may be slightly altered to prevent deformity.

Recognizing that the principles involved in tendon transplantation are the same in both conditions, I will briefly describe in the second part of this communication certain transplantation operations I recommend for various injuries.

As a preliminary I give here a series of diagrams Figs. 3, 4, 5, 6, and 7, illustrating methods of transplantation of tendon into tendon applicable under various anatomical conditions.

REFERENCES.

[1] The Annual Oration, Medical Society, May 18th, 1914, on Infantile Paralysis: its Early Treatment and the Surgical Means for the Alleviation of Deformities. [2] BRITISH MEDICAL JOURNAL, December 9th, 1911.

(To be continued.)

LIEUTENANT-COLONEL C. C. MCCULLOCH, Medical Corps, U.S.A., Librarian of the Surgeon-General's Office, Washington, D.C., informs us that the Army Medical Museum there possesses a valuable collection of medals relating to medicine, started and fostered by the late Dr. John S. Billings. It is desired to add to this collection and complete it as far as possible. Colonel McCulloch invites the assistance and advice of physicians who are collectors of medical medals. Gifts of medals are asked for, and also copies of catalogues for sale, as the museum is in command of money for the purchase of individual medals or private collections.

A CASE OF CONGENITAL ATRESIA OF THE DUODENUM TREATED SUCCESSFULLY BY OPERATION.

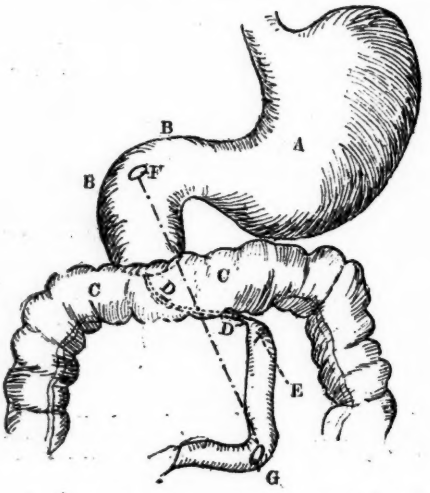
By N. P. ERNST,

CHIEF SURGEON AT ST. ELIZABETH'S HOSPITAL, COPENHAGEN, DENMARK.

The following report may prove to be of some interest, because there is only one instance known to me in surgical literature of a case of congenital atresia of the small intestine in which a surgical operation was successful. In that case, however, recorded by P. Fockens, of Rotterdam, the atresia lay a little above the ileo-caecal valve, so that the following will be the first instance ever reported of congenital atresia of the duodenum successfully treated by an operation.

Congenital Atresia of the Duodenum below Vater's Papilla: Duodeno-enterostomy: Recovery.

The patient was a boy, born on November 19th, 1914; labour was spontaneous. I was present at the birth, and for some time saw the infant almost daily. The parents were healthy, but although they had been married for three years this was their first child. The child was robust at birth, and there was no history of deformity in its family. It weighed 4,300 grams, and showed no external sign of any malformation. From the first the child always vomited after suckling. On the third day it took the breast more actively than at first; but two or three hours later it began to vomit, with almost explosive violence. Very little urine was passed, and the motions were limited to a small amount of typical meconium, without a particle of digested milk. The child was treated both with castor oil and enemata, and the oil, at all events at first, caused a larger quantity of meconium to come away. Rectal examination revealed no abnormal condition of the bowels. The child lost weight rapidly, to the amount of about 700 grams during the first week.



Duodeno-enterostomy performed on an infant. A, Stomach and dilated pylorus. B, B, Duodenum above transverse mesocolon. C, C, Transverse mesocolon. D, D, Atresic portion of duodenum behind and below transverse mesocolon. E, Flexura duodeno-jejunalis. F - - - G indicates the anastomosis between the duodenum at F, about the junction of the pars superior and pars descendens, and the jejunum at G, four inches below the flexura E, the jejunum being drawn up in front of the mesocolon.

I diagnosed the case as high-seated intestinal stenosis or atresia and suggested to the parents that it would be best to operate on the infant; but they wished first to consult a children's specialist, Professor Monrad. In all essentials he shared my view about the condition of the child; but its general health being otherwise so remarkably good, he considered that we could not exclude the possibility that the stenosis might perhaps be remedied by suitable medical treatment, such as that which he successfully used for congenital pyloric stenosis. He thought it therefore advisable to change the infant's diet, and wash out the stomach daily; but the vomiting continued, and during each of the following three days the infant lost 30 grams, so that its weight on November 29th was 3,490 grams. We both saw that an operation was imperative, and on the morning of November 30th the child was removed to St. Elizabeth's Hospital. Its general condition was still fairly good. The temperature, taken daily during the last days at home, was normal. Stethoscopic examination showed no thoracic disease. The abdomen was soft to the touch, without distension or swelling; now and then faint peristaltic movements were noticeable on the left side. The umbilical wound was well healed; it had been dressed since the shrivelling of the cord with cotton-wool moistened with 1 per cent. silver nitrate solution.

Operation.

Directly after admission the stomach was washed out, and the skin having been disinfected with soap, water, and spirit, abdominal section was undertaken under ether. The incision was made a little to the left of the middle line, and was between 7 and 8 cm. long. After the anterior sheath of the rectus had been laid bare, Mosetig batiste was sewn to the edges of the skin with continuous silk suture so that the integuments were completely covered. On opening the peritoneum the dilated stomach protruded into the wound, and was traced along the dilated pylorus into the duodenum, which was uniformly of about two fingerbreadths in width, as far as it could be traced to the upper side of the transverse mesocolon. But below the colon, where the intestine reappeared, at the flexura duodeno-jejunalis, it was seen to have collapsed to the calibre of an ordinary pencil, about 8 millimetres in diameter. The remaining part of the small intestine was examined quickly, especially its lower portion, but no stenosis was discovered.

On that account I made a duodeno-entero-anterior anastomosis—that is to say, a coil of small intestine about four inches below the flexura duodeno-jejunalis was drawn up *in front* of the transverse colon, and united to the duodenum about the junction of the pars superior and pars descendens. Anastomosis to the lower part of the pars descendens was impracticable.

The intestines were held during the operation by Doyen's straight soft intestinal forceps; first, continuous sero-serous suture was applied, then a continuous suture through all the layers the whole way round; and, finally, a continuous sero-serous suture on the front (all sutures of Turner's silk No. 1). When a stomach tube was passed through it a good deal of air and greenish fluid was discharged. The intestinal forceps was removed, and immediately afterwards the jejunum began to fill. The walls of the abdominal incision were united with deep catgut sutures, and interrupted silk sutures were applied to the sheath of the rectus and skin. The dressing was fixed with mastisol. The child was little affected either by the anaesthetic or by the operation, which lasted about 1¼ hours. It took 35 c.cm. of ether.

A few hours after the operation I began to give the infant a weak mixture of milk and water, about 30 c.cm. every two hours; it vomited a little several times in the course of the day, and at 8 p.m. more violently, so that the stomach tube was used, and a little greenish fluid evacuated. At 7 p.m. an enema was given, but without any result.

On December 1st the rectal temperature was 37.7° and 37.4° C. There was again much vomiting. On December 2nd the temperature was 37.4° and 37.1° C. Since the previous day the infant had had eleven meals of 30 c.cm. each. He had vomited three times during the day, and on December 1st was given one teaspoonful of castor oil twice and three enemata, and had altogether four alvine discharges, which without any doubt contained digested milk. The child's appearance was good. No more violent vomiting occurred, but there was slight sickness for some days; the bowels acted daily, and the stools soon appeared quite normal. The temperature also fell to normal. Five days after the operation the child was sent home to be suckled by his mother, who could not be admitted to the hospital. The dressing remained untouched till the fourteenth day, when all sutures were removed; the wound had healed by first intention.

The infant's weight decreased during the first five days 90 grams more, and was now 3,400 grams, or 900 grams less than at its birth; but afterwards it increased continuously, and considerably more than 250 grams a week for several months. We soon allowed meals every third hour, and when a few weeks had passed the child could sleep the whole night without food. He is now remarkably quiet for his age and is vigorous and well developed; his weight in the middle of October, 1915, was 11,200 grams.

Commentary.

As I mentioned in the first part of this report, medical literature relates but one instance of the recovery of an infant operated on for congenital atresia of the small intestines.[1] The child was a boy, born at term November 6th, 1910; he was taken to a free consultation; it was stated that he had never had any movement of the bowels and that he had vomited constantly ever since his birth

The abdomen was rather swollen and flatulent. On November 14th laparotomy was performed, and complete atresia of the small intestine detected. At a point normally between the middle and lower third of the small intestine the bowel was completely missing, being represented by a cord along the edge of the mesentery connecting the blind ends. After applying Doyen's intestinal forceps, entero-entero-anastomosis was performed with two rows of silk suture. After the operation the temperature rose to 105.8° F., but soon fell and became normal, and five months later the child had quite recovered.

Congenital atresia of the small intestines is, on the whole, very uncommon. In the foundling hospital at Petrograd Theremin reported nine cases among 150,000 children, and I myself have come across only two cases among 41,000 children in the Royal Lying-in Hospital at Copenhagen.

Different hypotheses have been advanced to explain the pathogeny of atresia of the small intestine, but the most probable is that advanced by Tandler,[2] the Viennese anatomist. On examining eleven human fetuses aged from 30 to 60 days he found that on the thirtieth day an epithelial proliferation begins in the duodenum, and results in a more or less complete obstruction of its lumen. This obstruction is greatest on about the forty-fifth day, and seems to have ceased on about the sixtieth day. According to Tandler's theory, congenital atresia of the small intestine is due to persistent physiological epithelial obstruction.[3] This theory was afterwards confirmed by E. Kreuter, and especially by Hj. Forssner[4] of Stockholm; the latter writer maintains that a narrow epithelial stenosis may become a complete atresia later on in fetal life, and in this way he explains the presence of meconium below the atresia, as noted above in the report of my own case.

I think all will agree that the treatment of atresia of the small intestine must be surgical, but as to the kind of operation opinion still differs greatly. From the perusal of cases recorded (even during the later decennia), it will be noticed that in an astonishing majority only enterostomy has been performed, and it has always resulted in sudden death, associated with an enormous rise of temperature; yet even in 1902 H. Braun[5] recommended this procedure as the normal method for deep-seated atresia of the small intestine. Naturally, I cannot share Braun's view; on the contrary, I maintain that if we are dealing with a fairly strong infant, without any other signs of bad deformity, we ought to perform a laparotomy, making the abdominal incision large enough to enable us to see where the obstruction is seated, and also to make sure that no second stenosis be present. Then the operator should make the anastomosis which the particular case demands. It will very seldom be possible to postpone the operation as long as in my case. As yet I have not been able to discover any account of anastomosis being performed for atresia of the duodenum. It will be noticed in the history of the recorded cases that while almost all the infants that have undergone this operation developed an exceedingly high temperature, although only enterostomy was undertaken, the infant operated on more radically by Fockens also got very high fever, yet completely recovered.

As we cannot suppose that failure is due in every case to defective personal asepsis on the part of the surgeon, we must direct our attention to the special source of the infection in the child itself. There is a risk on two sides —namely, from the skin and from the contents of the intestines. As is well known, the integuments of an infant during the first weeks of its life are always infected from the umbilical wound, and the delicate skin cannot stand any strong disinfectants. In order to eliminate this danger, I in the first place dressed the umbilical wound with cotton-wool moistened in a 1 per cent. solution of silver nitrate, before the putrefaction of the cord; and what was of still more importance, I sewed Mosetig batiste to the margins of the wound before laying open the sheath of the rectus, so that the intestines and compresses could not touch the skin. It cannot be doubted that the stagnant and decomposed contents of the stomach involve a great danger of peritonitis; it is necessary, therefore, if there be any suspicion of atresia, that the greatest care and cleanliness be taken in the feeding of the infant, hence only an experienced nurse should be entrusted with a case of this kind. The strictest care should be taken to prevent any of the contents of the intestines getting into the peritoneum during the operation. I chose the antecolic type of anastomosis as being the easiest to perform. The fact was that I was not able to apply it to the lower part of the duodenum on account of the adhesion of that part of the bowel to the posterior abdominal wall. A retrocolic anastomosis might for purely theoretical reasons have seemed to allow of almost normal anatomical conditions, but I consider that the drawing of the gut through the mesocolon and the more difficult application of anastomosis would have increased the risk of the operation considerably. Later, on reading Fockens's report, I was greatly interested in the fact that he had argued in a similar way.

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SOME HINTS ON TIME SAVING IN OPERATIONS.

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THAT an operation performed rapidly, without, of course, in any way impairing its efficient performance, is desirable in the interest of the patient, is, I think, admitted by all. Indeed, in many cases—for instance, a case of ruptured ectopic pregnancy—rapidity in operating may easily make the difference of life or death to the patient; and as necessarily the surgeon has frequently to undertake such cases, it is imperative that he should be able to act promptly, quickly, and safely. This is, however, not the point I am about to discuss; I am taking it for granted that it is better for the patient that any operation should be expeditiously performed. The gain, too, is not confined to the patient, but is time saved to the busy surgeon, and in hospital work, where operation succeeds operation, a saving of time is a great gain to all concerned.

How is time to be saved? First and foremost, I most emphatically state that it lies in efficient co-operation between the surgeon, house-surgeon, and theatre sister. I am, of course, now speaking of hospital work; any work in private must necessarily fall short of this. By constantly working together the surgeon, house-surgeon, and sister play into each other's hands and assist one another as do partners in any game—bridge or football, for instance.

Of the trio, perhaps the sister plays the most important rôle; a sister, such as we have at present at the Hull Royal Infirmary, must save hours in the course of a month's operating. A good sister knows the peculiarities of each surgeon she has to work with, and is ever ready to hand him the instrument he needs, never keeps him waiting a moment while she threads a needle but is ever alert, so that I often wonder that after five or six hours' work it is possible to remain good tempered and willing for anything further.

Then, too, much time is saved in a hospital between operations by efficient drilling of the nurses. I often sit and admire the way in which preparations are made for the next operation. After the dressings are applied the porters are summoned, the house-surgeon wheels the table out of the theatre, and then changes his gloves. The sister changes hers, and prepares the instruments for the coming case; one nurse swabs down the floor with a squeegee, another takes the bowls away, and replaces them with freshly sterilized ones; no one is in a hurry, all works as smoothly as a silent running motor car, and the theatre is ready before the anaesthetist has the next patient under.

After this, then, given a capable house-surgeon and a reliable theatre sister, what can the surgeon himself do in the saving of time? This, of course, varies with the individual; a man who in his youth has been accustomed to use his fingers as individual digits, who has practised such arts as carpentry, mechanical drawing, or piano playing, has all his fingers under control, and can use each one as required without any effort. The boy who is fond of using his fingers in any deft way, such as familiarity with the different knots in use among sailors, one who delights

in conjuring tricks with string, wire, etc., has developed his fingers to an invaluable extent if he is to become a surgeon.

Before the days of anaesthetics the surgeons felt the need for rapidity in operating, and when we read of the deeds of the great surgeons of those days one can only marvel at their dexterity, but to amputate at the hip-joint in half a minute demanded a very different dexterity from what is required to-day. Then the sutures were introduced with what would be regarded as a packing needle, and no effort was made for an artistic result; the main thing was to accomplish the operation as rapidly as possible.

In what ways, then, can the modern surgeon improve on his predecessor in time-saving devices?

Let us consider what is required in almost every modern operation, as if in manipulations that have constantly to be carried out a second can be saved in each motion a considerable amount of time is saved in the course of a year.

A very large amount of time is occupied in every operation in suturing; take gastro-enterostomy or intestinal anastomosis as examples; here really accurate and artistic work is demanded. When one observes the way that ladies work with the needle assisted by a thimble one is constrained to ask why surgeons do not adopt a similar device? Watch the accuracy and speed with which they do their work. Why are we so slow to adopt their ways? The fact is that we are hidebound by tradition, and to meet modern requirements have had to devise variously curved needles which can be pushed through with one hand, a hand composed of a bunch of fingers with an opposing thumb, and pulled out by another similar clumsy organ.

Some six or seven years ago I set myself the task of learning to sew with a thimble, and I am sure that it will well repay any surgeon to spend a quarter of an hour each day under the direction of his wife in learning to sew. I began by sewing odd pieces of rag together, and was soon promoted to hemming such coarse articles as dusters, but after a few weeks' practice I was able to hem a fine cambric handkerchief quite accurately and with some approach to speed. I found it best to have the thimble on the third finger, using the thumb and two first fingers to hold it, and I still use that method. To any beginner, however, I should advise the usual method adopted by the sempstress, and become accustomed to having the thimble on the second finger, as, although you will not have at first the security of grasp which is given by using the two first fingers and thumb, this will be compensated by the greater directive control of the thimble. Still, by using the two fingers with the thimble on the third, the point can readily be made to pursue a semicircular course When some proficiency is obtained, the first feeling that something has been gained is that the needle is so easily directed that its pointed portion is at once taken hold of by the thumb and forefinger of the same hand and pulled through, leaving the left hand entirely free for other work, such as steadying the part to be sutured. For example, when a piece of omentum is tied and cut off, it is desirable to bury the cut surface in order to prevent it forming adhesions; the stump can readily be invaginated and the mass held in the left hand while the right hand does the suturing; no assistance is needed, and while this is being done the house-surgeon can be replacing bowel or otherwise advancing the operation.

It may be urged that there are many positions in which it would be impossible to use a straight needle in preference to a curved one; this is so, but to a less extent than would at first be expected. It might be thought that for suturing the vagina or cervix after hysterectomy, where the surgeon has to work deeply in the pelvis, that a curved needle would be essential, but it is not so. In such circumstances a short needle must be used, the parts can be steadied by forceps, and only one hand has to be introduced into the pelvis. It is not in such cases as this that the straight needle is contraindicated, but rather in those in which there is no space available for the depression of the eye of the needle, as in sewing up the abdominal wound after an operation on the stomach or gall bladder in a fat muscular man; here, with rigid structures, I have often to use a curved needle, but this hardly ever happens in wounds below the umbilicus.

Second to acquiring the facility with the thimble I would place the ability to tie a surgeon's knot with one hand. The method of doing this was described by Borchgrevink.[1] After reading this article I was convinced of the importance of being able to tie the knot with one hand, and for some months carried a piece of string in my pocket and practised at the knot in any spare interval, passing the string through a buttonhole of my coat. It is a difficult knot to learn from a written description, but the time given to acquiring facility in its use will be very well spent by anyone. The first part of the knot is quite easy, but the second is at first distinctly difficult, and to learners I would give the hint that success in rapidly tying the second part lies in having plenty of laxity in the hand holding the distal end of the thread. Facility once gained the pleasure in knot-tying is greatly enhanced, and one uses, in preference, the single-handed method in cases where the double-handed method might equally well be employed, as one can do it more easily and quickly.

It will be asked, How can this method of tying a knot accelerate the operation? Take, for instance, a breast case where there are twenty or more artery forceps applied and waiting for ligatures. A reel of catgut is taken in the right hand, its end passed round the forceps held up by the house-surgeon, the knot tied with the left hand, and held by the left hand while the house-surgeon cuts it off; while he is doing this the right thumb and forefinger grasp the new end of the catgut; the left hand then casts off the useless portion, and the house-surgeon lifts up the next clamp, and the surgeon has the end of the suture in his fingers ready to pass round it.

The house-surgeon should keep his scissors in his right hand, and not put them down until all the ligatures are tied. With his left hand he should lift the clips and unfasten them. This requires a little practice, but after a time the whole of the combined manœuvre goes on like a machine; there is no hurry, but time is saved, and one feels that the work is progressing favourably.

Then, in applying interrupted sutures, as in the closure of an abdominal wound, the combination of the use of the thimble with the ability to tie the one-handed knot helps immensely. The needle is driven through with the thimble and taken by the finger and thumb of the right hand; meanwhile the left hand takes hold of the end of the strand of gut and ties, the right hand keeping hold of the needle, which is then ready for the next suture. The left hand now takes the ends of the first knot and holds the skin taut for the introduction of the second stitch; the needle is passed for the second time and then cast off while the house-surgeon cuts the gut from the first suture. The gut is now not long enough to enable one again to tie the single-handed knot, so one proceeds as follows: The left hand is holding one end of the gut to be used for the second stitch and also the short piece cut from the first suture; this latter may be disregarded, and the first portion of the single-handed knot tied, the second part being tied by the right hand. In this way a little time is saved by not having to discard the cut portion of the first knot and pick up the end again for the second one; the waste portion from the first knot falls away automatically when the second is completed.

By proceeding in this way time is saved by not having to pick up the needle, which is not let go until it is finished with. Contrast this with the double-handed method: The needle is passed and then laid down while the knot is tied, and if all goes well it has now to be picked up again, which takes a little time. But it is not always so; while left to itself it not infrequently becomes unthreaded, or, what is still worse, it contrives to turn round and prick one's finger. By using the single-handed method the needle never leaves the fingers, and its point is therefore always under control until it is finished with. Further, the short end of the gut can be held between the third finger and the ball of the thumb, so that there is no likelihood of its becoming unthreaded. When facility has been obtained with the single-handed method quite 50 per cent. is gained in time by its use, and this amounts to something when one has a long wound—as after amputation of the breast—to close.

Further, when one is operating without an assistant, it is easy to place all the sutures in a long wound without having to use the scissors until the completion of the operation, when all the strands may be cut at once. Thus,

the first suture is applied as described and the strands held taut with the left hand while the second suture is applied. The needle is then unthreaded and the second knot tied with the right hand, leaving a loop connecting the two knots. This is repeated as often as required, and when the wound is closed the strands can all be rapidly cut off.

Here time is saved by not having to pick up and discard the scissors at every suture. Of course this is a very small point, but it is the small points which tell.

So much, then, for ligatures and sutures; now about the instruments for use during the operation.

The first point is to use as few instruments as possible; a large number in a tray only adds to the difficulty of finding any one required. For most operations a pair of dissecting forceps, one toothed ditto, a pair of straight scissors, a couple of scalpels, and six to ten artery clips and half a dozen needles will be all that need be used.

Needles.

As the needle has to be threaded, so it is important that it should have an eye sufficiently large compatible with strength. The next point is that it should not too readily become unthreaded. These two points are admirably met in the Pattison needle, which has a pear-shaped eye; the thread can be easily passed through the large part of the pear-shaped opening and then pulled down to the narrow portion, which grips the suture and prevents its slipping. This valuable device is a great time saver, and also a help to keeping one in a good temper. Nothing is so exasperating as for the needle to become unthreaded at a critical moment.

There are some needles on the market adapted for easy threading. One of these is the calyx-eyed, in which the thread is passed through a couple of slots. It is true that it is easily threaded, but it also often becomes unthreaded, the suture slipping out by the way it entered. This is an objection, but not the greatest. I do not use such a needle in a gastro-enterostomy, for instance, as the thread can so easily be partly sawn through at the calyx, and as the life of the patient is literally hanging on that thread for two or three days it behoves one to make sure that the thread is not weakened in any part.

There is another self-threading needle which was once on the market, but is now, for some reason, difficult to obtain. This has a slot in the eye, so that the thread can be passed through in the same way in which one attaches a watch to the hook at the end of the chain. This is a useful time-saving device, and is free from the objection of liability to saw through the suture.

I always use a straight needle if possible, as I can then be sure where the point is, and in driving a needle through any tissue which opposes a perceptible resistance the needle may rotate on its own axis. If it is straight the point is not deflected, but if curved the point describes an arc of a circle and often comes out in a different place from that intended. Moreover, with a straight needle the thimble can be employed and by it the point directed in any desired direction.

Scalpels.

Some years ago the advantages of a round-ended knife were pointed out by a surgeon in the South of England, but I am unable to give the reference. This scalpel is shaped like a dinner knife, and I have found it most useful. In dissecting out glands in the neck, for instance, there is no likelihood of pricking an unseen vein, as there is with the ordinary pattern. The round-ended knife can be used in cases in which scissors ordinarily would be used. Time spent in laying down the knife and taking up the scissors is saved. As an example, the opening of the abdomen in appendectomy may be taken. When the external oblique is exposed the blunt-ended scalpel can be used to cut a slot at the lower angle of the wound, and the knife then inserted edge upwards and the incision made through the fibres of the oblique, as with a scissors. There is no point to catch in the underlying muscle, and all goes smoothly.

Artery Clips and Scissors.

I much prefer the box joint, for it is more durable and the teeth of the clips are more accurately approximated. Those with take-off joints are so liable to fall in two when taken up, and nowadays, when boiling is universal for sterilizing instruments, the need for taking them to pieces is not so obvious. Twenty years ago, when the dependence was on carbolic for disinfecting them, the take-off joint was a decided advantage.

It is well to have them made with large rings for the thumb and finger, so that they can be easily picked up and let go. When several artery clips, which have been used only as pressure forceps, are to be removed, there is no need to put each one down when it is released; three or four can be taken up one after the other, letting the rings slide up the fingers; then if the rings are large they can all be slipped off at once, thus saving a little time. There are some made with a little projection on each side near the handles, so that they do not lie flat on the table, but the rings are slightly lifted off it; the instrument is then more quickly picked up.

As an example, let us take the opening and closing of the abdomen for appendicitis by the gridiron method.

The incision is made through the skin with an ordinary scalpel, which is then laid aside and not used again, for aseptic reasons. A round-ended knife is then used to divide the subcutaneous fat. Any bleeding points are now secured and tied off in the manner already described. The skin wound is retracted by means of the thumb and second finger of the left hand, and the round-ended scalpel taken up again and not laid down until the peritoneum is reached; a slot is made through the fibres of the external oblique at the lower angle of the wound. Into this the knife is slipped and the aponeurosis slit up, then with the handle of the scalpel it is freed from its loose attachment to the underlying muscle. The wound in the external oblique is now retracted by means of the first two fingers of the left hand and the thin covering of the internal oblique divided; then, with the handle of the knife aided by the fingers of the left hand, the muscle fibres are separated down to the peritoneum. The knife is now laid aside, and a further separation effected by means of the two fingers of each hand. If the patient is a strong muscular man, or very fat, retractors may be needed to expose the peritoneum, but, as a rule, I find them unnecessary. The peritoneum is now picked up with a couple of pairs of clips and the opening made with scissors. The two clips are allowed to remain on, and with two others the upper and lower angles of the wound secured.

In closing the wound, the upper of these clips is taken in the left hand and a catgut suture passed with a straight needle and thimble and tied with the left hand, the right not letting go of the needle. The forceps is cast off with the left hand and peritoneum pulled up by means of the thread; the house-surgeon at the same time holds up the remainder with the three other clips and approximates the margins. It is now easy to pass an uninterrupted suture rapidly to the lower end of the wound, where it is tied off with the left hand, the right keeping hold of the needle. The same needle, which has not been laid down, now picks up the lower margin of the internal oblique at the anterior part of the wound, and is passed down the length of the opening in the muscle and the upper margin taken up; then a lace-like suture is applied and knotted off where the needle was first introduced. The aponeurosis of the external oblique is united by continuous suture, using a straight needle and thimble, and finally the skin sutures placed as already described.

The whole proceeding is done very rapidly, although there is no hurrying; each one of the trio knows exactly every little step that is to be made, so there is no confusion, and all goes perfectly smoothly.

The above was written some time ago and laid aside, but after reading the interesting paper on "Time in Surgery" by R. P. Rowlands in the BRITISH MEDICAL JOURNAL of April 15th, I am constrained to publish it in the hope that after such an able introduction to the subject as Rowlands has given, other surgeons may be induced to give some account of their own particular "fads" conducive to time saving at operations.

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THE Association for the Promotion of Medical Research for the Prevention and Cure of Tuberculosis has recently been incorporated in the State of New York. Its objects are the foundation of professorships and scholarships in the various medical schools of the United States and the maintenance of institutions for the treatment of sufferers from tuberculosis.

DRESSINGS USED IN A CASUALTY CLEARING STATION.

BY A. DON, F.R.C.S., MAJOR R.A.M.C.(T.F.).

TEN months in a casualty clearing station gives one an opportunity of trying the various methods of dressing wounds as they have been from time to time suggested, and of comparing their efficacy in cleaning damaged tissues, in preventing the spread of infections, and in adding to the comfort of the patients. If, as happens in my case, the surgeon is not identified with any of the newer disinfectants, a fair trial may be assured for each of them. The surgery of wounds, as distinct from the method of dressing, is not meantime under consideration, but it must be stipulated that, for real comparison, the surgical technique should not change coincidently with the method of dressing. To change both at the same time introduces two factors, either of which may alter the whole picture.

In published writings on the treatment of wounds in the present war one meets with assertions that antiseptics have failed us; that previous experience in, say, South Africa, does not help us; and even the suggestion that the dressing of wounds is more the province of the physician than of the surgeon; and, further, that all previous knowledge of the treatment of wounds must be a bar to success out here. Such statements must be taken *cum grano salis*, even though the writers are experienced and men of note.

It is true that a surgeon's methods in civil practice become more or less stereotyped. Older men unlearn old methods with difficulty and assimilate new ones with difficulty, but one is still left with the feeling that the surgeon of experience who possesses the virility to be at the front is a valuable asset to the army. His civilian dogmas get a rude shock at first, and his confidence in his well-tried methods may be shaken, but he soon recognizes the new elements he has to contend with, and will certainly have met them before, if rarely, or at least will be familiar with most of them from his knowledge of the history of surgery. The fact is that it is merely his memory that needs refreshing, and his fixed habits that need reforming.

Few even of the older surgeons have seen hospital gangrene, and they do not always recognize that this serious scourge of surgery throve on a lack of scientific knowledge of bacteriology and antiseptics, which is now taught to and understood by every medical student. The present gas gangrene is identical with the old hospital gangrene, and the mixed infections we see so frequently were in olden times, as sometimes even now, introduced in the dressings themselves. The greater number of shell wounds, and the high-velocity rifle bullet at close range, produce effects that are of daily occurrence here, but were new at first to surgeons who had been through the South African campaign. But all these effects have been met with before, and are, in fact, matters of history.

The one new feature is the trench warfare, and its effects on wounds. The soldier's skin, clothing, hair, every part of him which a missile has to traverse, is covered with mud, which is carried to the depths of every wound. Highly fertilized soil may contain every conceivable pathogenic and putrefactive organism. Such germ-laden wounds are unusual in civil life, and were so also in the South African war. They are, however, met with in accidents from agricultural districts, which are admitted mostly to small provincial hospitals, though they are also seen by surgeons attached to medical schools. The badly damaged and dead tissues at once putrefy and smell badly, and their treatment becomes more a question of sanitary science than of modern surgery, and has been more successfully dealt with by the disinfectants used in sanitation than by the commoner surgical antiseptics. To get rid of the smell and putrefaction in the wound has been to get rid of the unusual in the disease. What is new, then, in the surgery of this campaign is old in sanitary science, and older still in the history of surgery, which, being the older science, had dealt with the grosser infections much earlier.

Among the many methods of dressing wounds one comes across, none are really new, but one recognizes many an old friend in new war paint, habilitated with elaborate word-painting more or less accurate and convincing. A dip into a good textbook of surgery in use, say, about the early part of last century will convince any sceptic, though it is a thankless task to recommend such a perusal. The names of drugs are less mystifying, but a good description of the treatment of foul wounds with chlorine, iodine, and saline compounds, and even of gas gangrene itself, will be found and will well repay the ardent student. Attention has already been drawn to this by other writers. The cruder drugs produced then, as now, in a short time very candidly stated, a clean surface from which exuded laudable pus—that transition in the discharge from the nauseating putrefactive débris of decaying tissues to the odourless creamy pus, then, as now, considered laudable. This pus comes from living tissues in which are to be found the ordinary pyogenic germs alone. Putrefactive organisms can attack only dead tissues or those weakened by pyogenic processes or mechanical traumatism. To get rid of the putrefactive organisms and to prevent the ingress of the pyogenic has been the problem of wound treatment for surgeons in the present campaign, and it is yet to a great extent unsolved. Towards this objective I offer my experiences in a casualty clearing station.

I. *Hypertonic Solutions.*

Wright's saline treatment has received perhaps more praise than any other. In theory it seemed excellent, but in practice the results are various. When used properly and in suitable cases they are good, but the cases require careful selection, and its application requires more skilled watching than can usually be given with the means at one's disposal so near the front. The method and choice of cases cannot be left to the discretion of a dresser or even to the average medical man attached to a casualty clearing station, and if used as a routine dressing the results are more often positively bad than passably encouraging. In the majority of places where hypertonic salines are used as a routine dressing they are either too long continued for bad lacerations or are applied to many cases almost clean, where they are unsuitable.

To living tissues strong salt solution is extremely irritating, and causes pain for a very considerable period after each application. This does not depend on the patients. The action of salt on wounds was well known in history, when it used to be rubbed into the cuts made by the lash, not for its healing power be it noted. I have personally experienced its smart, for it was a favourite dressing in hypertonic solution in my boyhood. I owe the preservation of a perfect finger joint to its use, yet I well remember the happy change to a soap and sugar ointment which completed the treatment.

The hypertonic method does well for joints, when they have not been laid open too freely, and probably lacerated wounds where the explosive force of the missile has killed the tissues for a considerable distance beyond the bullet track. The salt preserves these dead tissues from putrefaction (a well-known use of salt), for it is an absolute bar to the growth of putrefactive organisms, while its irritating effect on the living tissues sets up a more or less severe discharge, which helps to prevent the ingress of pyogenic germs. But such a dressing should not be covered by non-permeable tissue, which will check entirely such outward flow of serum. The tabloid and gauze pack is perhaps the best for dirty wounds in casualty clearing stations, as it can be left for a considerable time without attention. There is at first practically no pain following its application, for even the tissues that will ultimately live are rendered analgesic by the blow. But once the dead tissue separates, and the hypertonic dressing becomes painful, it soon produces purplish, waterlogged, shining granulations, which at one and the same time form a barrier to the exit of discharges, and to any feeble antiseptic action it might exert on the cooped-up pyogenic germs below. Absorption begins, and abscesses in the depths are not unusual.

How often are these pyogenic organisms present from the start? I am inclined to believe that even nowadays they are sometimes introduced much as they were by the surgeons in pre-antiseptic days. I have seen in hospitals out here the pernicious habit, which had almost disappeared in the best civil hospitals, of wringing gauze from antiseptic solutions with the bare hand. The result is that all the germs present in the previously dressed cases, are inoculated into the wound. Rubber gloves

prevent this patient-to-patient infection, and when combined with the method I adopt of dressing all the serious cases myself and leaving the bandaging to an assistant, often an orderly, and washing the gloved hands well with a cotton-wool dab in a strong antiseptic after each case, time is saved and perfect safety from multiple infection is assured.

Before the wound shows the purplish granulations described, and before the patient complains of the smarting, and in all wounds where the exposed surfaces are living tissues, hypertonic solutions are contraindicated. The saline method of Wright requires careful watching by the surgical specialist, who must see every case so dressed daily. It is not, therefore, suitable for routine work in a casualty clearing station, nor even in a base hospital. I have said nothing of the normal saline, with which everyone is familiar.

II. *Hypochlorous Acid.*

Hypochlorous acid has been used in the forms eusol and eupad. The deodorizing effect is sometimes magical, especially when the dry eupad is applied to stinking, bruised, and dead tissues. But eupad so used is very caustic and very painful, and should only be applied by the surgeon himself. Eusol solution, on the other hand, is seldom painful, and is a good routine application, but some skins are very susceptible to it, and it must not be applied for long periods to wounds of the back of the hand, dorsum of foot, and of the neck, forearm, and wrist. It should always be freshly mixed, applied once or exceptionally twice daily, and should not be covered by protective. The drip method is specially useful in compound fractures, and in all lacerated wounds of the limbs where there is gas gangrene and foul smelling sores. Eusol is one of the best methods we have tried, and it need not be continued after the wound is fairly clean and free from smell. A sterile dressing is then quite sufficient.

III. *Iodine.*

Iodine in spirit or watery solution acts pretty much like hypochlorous solutions as a deodorant, while the spirit preparations act like the hypertonic salines, by inducing a serous flow. Iodine is very irritating to most skins, and the pain continues for some time after the dressing is applied.

IV. *Spirit: Glycerine.*

Methylated spirit or glycerine, alone or charged with antiseptics—for example, biniodide spirit, glycerine and ichthyol—both act like the hypertonic saline in producing free discharge, and require frequent changing. They do not cause so much pain, but are expensive to use in routine work.

V. *Carbolic Acid.*

Carbolic acid, when used pure, cauterizes the surface, and is only feebly antiseptic, as its combination with albumin dams back all discharges. It is a useless application where there is deep destruction of tissue. It runs over and destroys the skin, and cannot be recommended as a first treatment for wounds of any kind. In solutions of 1 in 60 on double cyanide gauze it is quite good in a rush. Large quantities of the gauze can be kept moist in this solution in small enamelled *marmites*, as recommended to me by Colonel Wallace, and this method is specially useful in busy times. It is painless, can be applied to most wounds indiscriminately, and the dressing can be left entirely to nurses and even to orderlies in emergencies without risk. But carbolic is a weak destroyer of putrefactive organisms. The greatest danger in its application is the wringing of the gauze with the bare hand; this can be avoided by gloves or by applying the dressing moist with sterile forceps.

VI. *Sterile or Double Cyanide Gauze.*

Dry sterile gauze or the double cyanide gauze are both quite good dressings for visibly clean wounds, and if removed by hydrogen peroxide when too adherent are suitable for dressing such cases, and convenient for rushes. They are safer than moist dressings when applied with the bare hand carelessly.

VII. *Hydrogen Peroxide.*

Hydrogen peroxide cleans a cavity or surface quickly, and is a good deodorant, but is not satisfactory as a wet dressing applied on gauze. The under layers become clogged and non-absorbent. It is a weak antiseptic, which at once produces its total effect if thus applied. Like protective, it checks drainage of discharges and promotes absorption. Its mechanical effect is practically its only recommendation as a lotion for dressing. It is quite good as a bath for foul-smelling wounds, either alone or with boracic.

VIII. *Continuous Irrigation.*

I have not said much regarding continuous irrigation of wounds, as only exceptional cases in quiet times can be so treated in casualty clearing stations. This is especially true in a tented unit.

IX. *Vaccines and Serums.*

Injections of polyvalent serum has seemed to do good in many cases, especially when used before an operation on a granulating wound where bone has to be removed or a plastic operation done. There is less local reaction and less general disturbance if a full twenty-four hours is allowed to elapse between the injection and the operation.

CONCLUSION.

It is not so much the antiseptic dressing used as its intelligent application that matters. Almost any one of the methods we have tried will give average good results, but there are cases in which one application is more suitable and more easily applied than any of the others, and it is right here, to use an Americanism, that the specialist in surgery in a casualty clearing station comes in. He should never become an enthusiast in any one method of dressing, as he is then a danger to his patients and an embarrassment to his colleagues, to whom freedom of choice is as necessary to secure their intelligent interest as a change of method of dressing may be to the patient. No surgeon or dresser in a casualty clearing station should try to drive a one-horse shay and so become a menace to the recovery of not a few of his patients.

ACUTE URINARY INFECTION WITH PARATYPHOID B BACILLUS.

BY

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IT is now generally recognized that the differentiation between typhoid and paratyphoid fevers is a problem that can only with certainly be solved by the bacteriologist. It has been said that some distinction may be made clinically, in so far as cases of paratyphoid fever usually run a much milder course. Recently, however, several deaths from paratyphoid fever have been reported, and it is probable that this clinical distinction will prove unreliable; further, with the more detailed study of all febrile cases, it seems likely that anomalous forms of the latter will be recognized.

The case herein reported illustrates acute urinary infection with the *B. paratyphosus* B, and, while exhibiting little in common with ordinary paratyphoid infection as hitherto recognized, presents several additional interesting features worthy of record.

The patient, a private in the A.S.C., aged 17, was admitted to hospital on December 31st, 1915, for "abdominal pain and incontinence of urine." He had had no previous illnesses, and had never been abroad. He was quite well up till the morning before admission, when he was seized with intense and frequent desire to micturate, but was unable to pass more than a small quantity of urine at frequent intervals. This condition persisted throughout the day, and he experienced a certain amount of pain across the lower part of the abdomen. During the night he was unable to sleep, and felt "shivery." The following day the abdominal pain was rather more severe, and the slightest desire to micturate was always associated with inability to control the flow. There was no vomiting, no diarrhœa, and he complained of only slight headache.

On admission, the skin was hot and dry, the tongue very furred, the temperature 103° F., and the pulse 112. There was some tenderness in the region of the bladder, but nowhere else in the abdomen, and a quantity of albumin was found on

examination of a catheter specimen of urine. Nothing could be made out in any of the other viscera, the heart and lungs were normal, and the spleen was not enlarged. The next day (January 1st) the patient was rather drowsy, incontinence of urine was present, and a specimen, on standing, showed quite an appreciable deposit of pus.

The patient's condition remained much about the same until January 6th, on which date bladder control was regained although frequency of micturition continued and pus was still present in the urine. There was some diarrhoea on January 5th only, but at no other time. On January 8th a small quantity of blood appeared in the urine and persisted until January 12th; but the pus persisted in considerable quantity until January 17th, when it was noticed to be very much diminished. On this latter date a few hyaline casts were observed.

On January 1st the patient was placed on treatment with the following mixture, which was continued three times daily throughout the illness:—Hexamine gr. x, sodii acid. phosph. gr. xv, syr. aurantii ℥1, aq. ad ℥ii.

On January 3rd *B. paratyphosus* B was recovered from the urine in pure culture; it gave the usual sugar reactions and agglutinated strongly only with a specific paratyphoid B agglutinating serum. The same organism was again isolated from the urine in pure culture on January 10th. A blood culture on January 5th proved negative.

A vaccine was prepared from the *B. paratyphosus* B recovered from the urine, and on January 11th an initial dose of 50 million was administered. On January 13th the agglutination reaction of the patient's serum against his own *B. paratyphosus* B was tested, using the macroscopic method, and a completely positive result was obtained up to a dilution of 1 in 100. On January 12th *B. paratyphosus* B was again recovered from the urine in pure culture. By January 12th the patient was free from pain and stated he felt much better. On January 16th 100 million of the autogenous vaccine were given as a second dose, and on the following day it was noticeable that the amount of pus in the urine was enormously diminished.

There was continuous fever from the onset up to January 7th, the temperature varying from 104° F. to 101° F., and from January 7th to January 15th there was an habitual evening rise to 100°–101°, although the morning temperature was normal. From January 16th onwards the temperature remained normal. The pulse-rate varied with the temperature. During the first three days it ran between 100 and 120 per minute, then tended to be a little slower, and on January 7th it varied between 80 and 90. From January 7th to January 15th the pulse ran between 80 and 100, on three occasions only going beyond 100. From January 16th onwards the pulse varied between normal and 100, surpassing this limit on only nine occasions.

On January 18th no paratyphoid B or other organisms could be recovered from the urine, and no pus cells were observed on microscopical examination. On January 20th tenderness over the bladder had disappeared, frequency of micturition had gone, and the patient felt quite well; a very faint cloud of albumin only was present in the urine.

On January 22nd we again failed to recover any organisms from the urine, but a few pus cells were seen on microscopical examination of the centrifugalized deposit. On January 23rd the third dose of vaccine was given—namely, 250 million. On the 27th a trace of pus could still be made out in the urine, and on the 29th a 500 million dose of vaccine was administered. On February 1st a slight local reaction to the vaccine was noticed for the first time, and the patient's serum was found to completely agglutinate his own *B. paratyphosus* B in dilutions up to 1 in 400. On February 5th no organisms could be recovered from the urine, and a fifth dose of vaccine, consisting of 750 million, was given. On February 13th 1,000 million of vaccine were given as a sixth dose, and on this date the urine was found to be free from albumin, although a few pus cells could still be detected. On the following day bacteriological examination of the urine failed to show any organisms.

On February 20th the urine was still free from albumin, and no pus cells could be detected whatsoever. On February 24th the seventh and last dose of vaccine was given, namely, 1,500 million. On March 10th a careful search was made of the urine and only a few degenerate bladder epithelial cells were found after centrifugalization. No pus cells or organisms were seen, and cultures proved sterile. The patient, perfectly well, left hospital on this date for a convalescent home.

The faeces were examined bacteriologically on February 22nd, March 1st, 5th, and 14th, but on no occasion was the *B. paratyphosus* B or other member of the typhoid group recovered.

The infection in this case appears to have chiefly affected the bladder, although one cannot exclude an associated pyelitis which possibly was also present, but in a considerably slighter degree. The onset of the illness in its suddenness resembled ordinary paratyphoid fever, and in which "a feeling of chilliness is also common."[1] Apart from the localization of the infection the present case was markedly atypical in other respects. The pulse was not relatively slow (80 per cent. of cases), but was increased in rate in proportion to the rise in temperature; the spleen was at no time enlarged (50 per cent. of cases); there were no "spots" during the course of the illness (75 per cent. of cases), and no vomiting or abdominal tenderness beyond the early tenderness over the hypogastrium. In typical paratyphoid fever diarrhoea is common during the first second, and third days, and it is a striking feature of our case that diarrhoea should not have occurred until the sixth day and then ceased on the day following.

It has been observed that in certain cases the *B. paratyphosus* B shows a marked tendency to pus formation; thus, among the purulent infections described are splenic abscess, suppurative orchitis, empyema, liver abscess, lung abscess, and peritonitis without perforation.[2] All these conditions, however, occurred following, or as a complication of more or less typical attacks of paratyphoid fever. H. Robinson,[3] in commenting on a long series of paratyphoid cases, mentions, among complications, the fact that cystitis occurred once, and in this case *Bacillus paratyphosus* A was isolated from the urine. Stolkind,[4] who is convinced that paratyphoid as well as typhoid infections are symptom-complexes, also states that cases of infection of separate organs have been met with—for example, appendicitis paratyphosa, cystitis paratyphosa, etc. He also describes, *inter alia*, an influenzal or respiratory form, but even in these cases the patients seem to show a large spleen and "spots."

It would appear, further, from a perusal of the literature, that it is by no means common to find paratyphoid bacilli in the urine during the course of an ordinary attack of paratyphoid fever. Fortescue-Brickdale,[5] Dawson and Whittington,[6] and others mention cases, but references are not numerous. As far as we are aware, urinary carriers of *Bacillus paratyphosus* B—that is, the bacillus occurring in the urine of otherwise healthy subjects—have not yet been reported. Wiltshire,[7] in an examination of 98 cases of paratyphoid fever, says: "Kidney and bladder complications were very rare. In many cases . . . the urine was examined carefully for possible renal complications, always with negative results." Incontinence, apart from pyuria, sometimes occurs in severe paratyphoid, and was present in a few of Willcox's cases.[1]

In connexion with our case it is interesting to recollect that in urinary carriers of typhoid the *B. typhosus* has its habitat generally in the renal pelvis, which is usually chronically inflamed, and it has also a secondary habitat in the chronically inflamed bladder.[8] In fatal cases of typhoid fever the renal pelvis is often found congested, but the ureters and bladder are usually normal, though signs of cystitis may be found at times. In contrast to paratyphoid, bacilluria occurs in about one-third the cases of typhoid, although pyuria is recognized as a rare complication. Pyelitis sometimes occurs (Osler), and Patrick[9] has recorded one fatal case of typhoid in which multiple abscesses were found in the kidneys *post mortem*.

In conclusion, to summarize the chief features in the case recorded above, we note:

1. Pyuria due to a pure infection with *B. paratyphosus* B.
2. The absence of the usual signs of paratyphoid fever.
3. The successful treatment with autogenous vaccine and hexamine.
4. The patient had not been abroad.

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A CASE OF GANGLIO-NEUROMA OF THE SYMPATHETIC.

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ABOUT six cases of ganglio-neuroma have been recorded in Great Britain.[1] The history of this case is as follows:

A well-developed male child, aged 3 years, was admitted to Kilmarnock Infirmary on October 2nd as a case of acute intestinal obstruction from intussusception.

Twenty-four hours previous to admission he began to complain of severe pain in the abdomen, which was observed to be swollen and hard. Blood and mucus, with a small quantity of faeces, were passed several times by

the bowel. His condition was ascribed to a known indiscretion in diet. He had had no previous illness.

On admission the child looked ill and was very restless. The temperature was 104° F., pulse 160, and respirations 36. The abdomen was freely palpable. A swelling could be felt occupying the right iliac and right hypochondriac regions. It was immovable, very hard, and apparently circumscribed. Although the outline of the mass could not be entirely determined, the tumour appeared to be adherent along its deep surface, while the abdominal wall was freely movable over it. On palpation the whole mass seemed to be smooth, and of the size and shape of a large orange. A provisional diagnosis of sarcoma or of tuberculous glands was made.

The following morning laparotomy was performed. The abdomen was tense. The intestines were nowhere adherent, the ileum and part of the ascending, the transverse, and the descending colon were very red and inflamed, and about 6 in. of the ileum was collapsed, apparently from pressure. There was no further sign which might have indicated a previous intussusception, and acute colitis was evident.

Behind the intestines, and pushing them over to the right and down into the pelvis, a large mass was found situated retroperitoneally along the right side of the bodies of the last four lumbar vertebrae, with the external iliac artery and vein crossing it superficially. The psoas muscle was behind the tumour and it appeared to be flattened. The tumour was immovable, and firmly adherent along its central and posterior surfaces; it was not adherent to the aorta. The condition was thought to be due to a sarcoma arising from the periosteum of the bodies of the vertebrae. A wedge-shaped piece was taken out of the substance of the growth for microscopical examination; a considerable amount of haemorrhage took place from the wound thus formed.

The child died the following day. The tumour was easily removed *post mortem*, it being apparently capsulated and only bound down by connective tissue to the sheath of the psoas muscle. No glandular involvement could be made out, and the kidneys and suprarenals were free from any implication in the tumour growth.

The tumour was kidney-shaped and rather flattened on its deep and central surfaces. Its length was 11 cm., breadth 9 cm., thickness 7 cm., and its weight 226.8 grams. The general appearance of the tumour was very like that of a fibromyoma. On section there was seen to be a very definite fibrous capsule. The substance of the tumour was firm, tough, and resilient. The cut surface was smooth and in some places glistening. White, grey, and yellow fibres could be distinguished in a general felted mass.

Microscopical sections were stained with the usual stains and also for axis cylinders, myelin, Nissl's bodies, fat and glia. It was easy to recognize that the great mass of the tumour was composed of nerve fibres supported in a fibrous tissue stroma. Both medullated and non-medullated nerve fibres were present. Large numbers of ganglion cells, similar to those of normal sympathetic ganglia, were seen in groups scattered throughout the growth. There were also many developmentally early ganglion cells, the so-called sympathoblasts. The growth was non-malignant, and there was no metastasis.

I have to thank my chief, Dr. W. McAlister, for permission to publish this case.

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SIR WILLIAM TURNER, Vice-Chancellor and Principal of the University of Edinburgh, left personal estate in the United Kingdom valued at £71,467, of which £33,730 is in Scotland.

IN the summer term of 1914, the last academic peace term, there were 4,750 foreign students attending the German universities. In the summer term of 1915 this figure had fallen to 1,305, owing, as is alleged, mainly to the expulsion of about 2,600 students from hostile countries. It is, however, claimed that even in 1915 there were 62 Russians, 2 British, 5 Italians, and 1 Belgian students resident in Germany. Among the foreign students were 150 women.

THE THERAPEUTIC VALUE OF HYPOCHLOROUS ACID.

BY

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IN October of last year I communicated to the BRITISH MEDICAL JOURNAL[1] some experiments on the neutralizing effects of hypochlorous acid on diphtheria toxin, and drew attention to the resistance the animal body offers to large quantities of the solution used.

During the last nine months various investigators have dealt with the hypochlorites as antiseptics—Lorrain Smith, Murray Drennan, Rettie and Campbell,[2] Dakin,[3] Schütze[4]—and also given the results of treatment by intravenous injection—Lorrain Smith, Ritchie and Rettie,[5] and Brand and Keith,[6] in cases of puerperal infections; Fraser and Bates,[7] in cases of toxaemia consequent to gas gangrene.

In this paper I publish further and more detailed experiments to determine the antitoxic and antiseptic power of hypochlorous acid *in vivo*.

It has been shown by Dakin[3] that *in vitro* staphylococci suspended in saline are killed within two hours by sodium hypochlorite, 1 in 500,000, but that when serum is present a concentration of 1 in 1,500 is needed.

It has been thought, therefore, important to prove experimentally (1) which is the highest concentration of HClO tolerated by animals, and (2) what is the lowest concentration producing an antiseptic or antitoxic effect.

Rabbits of about 2 kilos in weight and therefore with approximately 90 c.cm. blood were used. The HClO solution employed was eusol with a hypochlorous acid concentration of 0.5 per cent., physiological saline being used in place of water and $CaCl_2$ added on account of its antitoxic properties; it is prepared as follows:

To 800 c.cm. physiological saline add 10 grams bleaching powder and 10 grams boric acid, shake vigorously, allow to stand for two or three hours, then filter and add to the filtrate 2 grams of chemically pure calcium chloride. The solution now contains HClO in a strength of between 0.5 and 0.6 per cent.; saline is added until the required concentration of 0.5 per cent. is reached. Owing to its instability the solution must not be used longer than three days after preparation.

While 20 c.cm. of this HClO solution, giving a concentration of about 1 in 1,100 in the blood of the animal, were generally well tolerated, 10 c.cm. proved to be entirely harmless, and the concentration of about 1 in 2,000 that resulted appeared, moreover, to be near the limit of efficiency; 5 c.cm. doses (about 1 in 3,800) seldom led to beneficial results.

Attention may be drawn to the fact that a great number of toxins of bacterial origin are considered to be of an albuminoid nature (Brieger and Fraenkel,[8] Brieger and Boer,[9] Etienne Burnet[10]); it is possible, therefore, that hypochlorous acid may neutralize toxins by coagulating and eventually precipitating them.

The following tables show the efficacy of 10 c.cm. doses of the HClO solution in certain artificially produced infections and toxaemias.

TABLE I.—*Diphtheria Toxin.*

Rabbit.	Dose of Toxin Injected Subcutaneously	Quantity of HClO Solution Injected Intravenously.				Results.
		Immediately	After 24 hrs.	After 48 hrs.	After 72 hrs.	
1	10 L.D.	10c.cm.	10c.cm.	—	—	Animals remain healthy.
2	10 L.D.	10c.cm.	10c.cm.	—	—	
3	10 L.D.	10c.cm.	10c.cm.	—	—	
4	10 L.D.	—	10c.cm.	10c.cm.	—	After 5 days paralysis of the legs.
5	10 L.D.	—	10c.cm.	10c.cm.	—	
6	10 L.D.	—	10c.cm.	—	10c.cm.	
Control	10 L.D.	—	—	—	—	Dead after less than 48 hours.

TABLE II.—*Tetanus Toxin.*

Rabbit.	Dose of Toxin Injected Subcutaneously	Quantity of HClO Solution Injected Intravenously.			Results.
		After 24 hrs.	After 48 hrs.	After 72 hrs.	
1	0.1 c.cm.	10 c.cm.	—	10 c.cm.	Tetanus.
2	0.1 c.cm.	10 c.cm.	10 c.cm.	—	Healthy.
3	0.1 c.cm.	10 c.cm.	10 c.cm.	—	
Control	0.1 c.cm.	—	—	—	Tetanus.
		SERIES B.			
4	0.25 c.cm.	10 c.cm.	10 c.cm.	—	After 4 days tetanus; recovered after 10 days.
5	0.25 c.cm.	10 c.cm.	10 c.cm.	—	
6	0.25 c.cm.	10 c.cm.	10 c.cm	—	
Control	0.25 c.cm.	—	—	—	Dead after 4 days
		SERIES C.			
7	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm.	Dead after 7 days.
8	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm.	Dead after 11 days.
9	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm.	Dead after 7 days.
10	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm	Healthy.
11	0.50 c.cm.	10 c.cm.	10 c.cm.	10 c.cm.	Dead after 8 days.
Control	0.50 c.cm.	—	—	—	Dead after 4 days.

TABLE III.—*Staphylococcus pyogenes aureus.*

Rabbit.	Number of Micro-organisms Injected Intravenously.	Quantity of HClO Solution Injected Intravenously.			Results.
		Immediately.	After 24 hrs.	After 48 hrs.	
1	50 million	10 c.cm.	10 c.cm.	—	Animals remain healthy.
2	50 ,,	10 c.cm.	—	10 c cm	
3	50 ,,	10 c.cm.	—	10 c.cm.	
Control	50 ,,	—	—	—	Dead after 48 hrs.
		SERIES B.			
4	100 million	10 c.cm.	10 c.cm.	—	Animals remain healthy.
5	100 ,,	10 c.cm.	10 c.cm.	—	
6	100 ,,	10 c.cm.	10 c.cm.	—	
7	100 ,,	10 c.cm.	10 c.cm.	—	
8	100 ,,	10 c.cm.	10 c.cm.	—	Dead after 10 days.
Control	100 ,,	—	—	—	Dead after 24 hrs.

TABLE IV.—*Bacillus perfringens.*

Rabbit.	Number of Micro-organisms Injected Subcutaneously.	Quantity of HClO Solution Injected Intravenously.			Results.
		After 24 hrs.	After 48 hrs.	After 72 hrs.	
1	50 million	10 c.cm.	10 c.cm.	—	Animals remain healthy.
2	50 ,,	10 c.cm.	10 c.cm.	—	
3	50 ,,	10 c.cm.	10 c.cm.	—	
4	100 ,,	10 c.cm.	—	10 c.cm.	Dead after 8 days.
5	100 ,,	10 c.cm.	—	10 c.cm.	Healthy.
6	100 ,,	10 c.cm.	—	10 c.cm.	Healthy.
Control	100 ,,	—	—	—	Dead after 48 hrs.

CONCLUSIONS.

It has been found that in rabbits 10 c.cm. intravenous doses of a 0.5 per cent. HClO solution, even when repeated on two or three days in succession, produce no ill effects, that they may delay or prevent the onset of symptoms due to the injection of the animals with diphtheria and tetanus toxins, and with cultures of *Bacillus perfringens* and *Staphylococcus pyogenes aureus*, the rabbits recovering from the infection or remaining healthy.

Hypochlorous acid intravenously administered is therefore to be regarded as of therapeutic value; the antiseptic apparently delays the development of bacteria and destroys their toxins, thus enabling the natural resistance of the animal to assert itself.

It is suggested that this destruction of toxins may be in the nature of a protein coagulation.

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A SIMPLE METHOD FOR THE INTRAVENOUS INJECTION OF EUSOL.

BY

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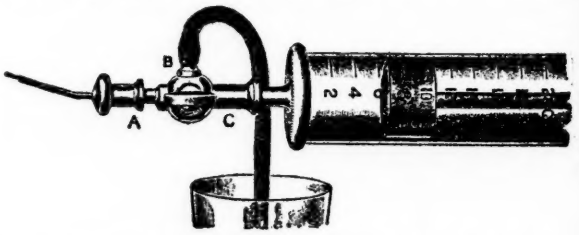
THE intravenous injection of eusol has been recommended by Lorrain Smith, Ritchie, and Rettie[1] to combat the toxaemia in cases of septic infection. Encouraging results have been recorded,[2] and the method of treatment has opened up a new field of investigation. The object of this note is to describe a simple method of injecting the solution by means of a syringe and needle. It is preferable to introduce the solution without exposing the vein by incision, as the patient is less disturbed by the simpler procedure, and it may be necessary to repeat the injection several times. It is further of advantage to employ a syringe rather than a funnel and tubing attachment to the needle, as the rate of injection can thereby be more readily controlled.

A 20 c.cm. Record syringe is of suitable size, but the capacity of the syringe is not important. To avoid the necessity of detaching the syringe from the needle, for the purpose of refilling, a simple two-way cannula is employed fitted with a stopcock. The ends of the cannula are moulded to fit easily but firmly on to the syringe at (C) and to the needle at (A). A lateral



Syringe, cannula and needle for intravenous injection of eusol.

opening is placed at (B) and connected by rubber tubing to the flask containing the solution of eusol. By turning the stopcock the syringe can be connected either with the needle, as seen in the diagram, or with the eusol solution by means of the lateral opening. It is best to use a fine needle, as the rate of injection should be slow—usually about 10 c.cm. in one minute. In the case of small veins also a fine needle is more likely to penetrate the wall of the vein successfully. If the needle is slightly bent, as seen in the diagram, there is less chance of puncturing the vein a second time. A superficial vein in front of the elbow is usually available. If there be difficulty in finding a suitable vein, the patient should be kept in a warm atmosphere for some time before the injection. In cases where no vein can be demonstrated, even with a tourniquet, the arm should be placed for a few minutes in a hot-air or hot-water bath.

Before insertion the needle should be attached to the cannula and the cannula to the syringe, so that the entire apparatus is rigid and easily controlled. There should be a few cubic centimetres of saline in the syringe, and after puncturing the vein the plunger should be slightly withdrawn; if the vein has been successfully entered, a stream of blood will be drawn into the syringe. The saline within

the syringe should be injected next, in order to make certain that there is no leak. The stopcock is now turned and the syringe filled by withdrawing the plunger. After reversing the stopcock, the eusol is slowly injected into the vein. This process is repeated till the desired amount is injected. At the conclusion a syringeful of saline should be introduced. The initial dose should be from 50 to 100 c.cm., but later as much as 150 c.cm. may be given. Care must be taken not to inject any eusol into the tissues, as even a few drops will cause severe pain.

The solution injected is eusol, to which common salt has been added in the proportion of 8.5 grams per litre. It is prepared by shaking up 25 grams of a mixture of equal parts of chloride of lime and boric acid in 1 litre of water and subsequently filtering; to the filtrate 8.5 grams of common salt are added. Before injection the solution of eusol should be warmed to about the blood temperature by placing the containing flask in a basin of hot water.

It is important to note that it is essential to adhere strictly to the directions given for the preparation of eusol, which is a balanced mixture containing about 0.5 per cent. hypochlorous acid and 1.2 per cent. calcium borate.[3] The presence of the borate gives the solution a reaction faintly alkaline to litmus.

It has already been pointed out that it is impossible to inject either free hypochlorous acid alone or solutions of sodium hypochlorite.[4]

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[1] BRITISH MEDICAL JOURNAL, November 13th, 1915. [2] Fraser and Bates, ibid., January 15th, 1916; Brand and Keith, ibid., March 18th, 1916. [3] Ibid., July 24th, 1915. [4] Ibid., January 29th, 1916.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

AN UNUSUAL CASE OF MUMPS.

MISS McC., aged 22, a student at a physical training college, returned from Scotland on January 27th, 1912. On January 29th she gave a lesson in a school where mumps had been prevalent for several weeks. On February 1st she was skating for several hours. During that night she was seized with vomiting and acute abdominal pain. The vomiting ceased by the morning, but the pain remained, and was treated by hot fomentations. I saw her first on the morning of February 3rd. She then complained of considerable abdominal pain about two inches above the umbilicus. The abdomen was rigid and flat; the temperature was 102°, and the pulse 100. There was a history of constipation. She was given one ounce of castor oil and the hot fomentations were continued. By the evening her bowels had acted four times, and some scybalous masses had passed. The pain was now referred to the region of the descending colon, which appeared to have still some hardened faecal masses in it. She was given a simple enema, which acted well, more scybala passing. The pain then passed to the left ovarian region, where it remained till the evening of February 6th, when the temperature, which had kept between 100° and 102°, dropped to normal; on February 7th it again rose to 101°, and she had pain to the right of the middle line over the right ovarian region. This pain continued, and on February 9th there was fullness and dullness over its seat; this increased, and on the morning of February 11th Mr. Gifford Nash saw the patient with me. He found the lower part of the abdomen doughy and oedematous, with rigidity of the abdominal muscles. By digital examination the rectum was found to be ballooned and considerable exudation round it. She was removed to the nursing home for observation.

On the morning of February 12th both parotid glands showed the typical swelling of mumps, the fullness of the abdomen was less, and the tenderness considerably diminished. By February 21st the patient was convalescent, all parotid swelling had gone, and also the fullness and tenderness from the abdomen. From the sequence of events, it would appear that the pancreas was first affected, then the left ovary, after that the right ovary, and finally both parotids simultaneously.

There is no history of the patient being exposed to infection before her return here. Is it possible that she received the infection on January 29th when teaching in the infected school? Fourteen to twenty days is the usual incubation period for mumps according to most writers, but Fagge in his book says from six to twenty-one days.

I wish to express my gratitude to Mr. Gifford Nash for his kind advice and valuable assistance in this rather puzzling case.

ANDREW CHILLINGWORTH, L.R.C.P.Ed.,
Bedford. M.R.C.S.Eng.

AVULSION OF THE DISTAL PHALANX OF THE THUMB.

A DRIVER of the A.S.C. was exercising a mule when the animal bolted, and the man was thrown off his feet and dragged, owing to the fact that his right thumb in a woollen glove had been caught in a small ring in the harness. A ditch chancing to cross the path the man dropped into it and came to a dead stop, with the result that the distal phalanx of the thumb, still clothed in the glove, cleanly severed, was torn off, carrying with it the tendon and belly of the flexor longus to a length of 9½ in.

ROBERT SCOTT, M.B.,
Temporary Lieutenant R.A.M.C.

Reports

ON

MEDICAL AND SURGICAL PRACTICE IN HOSPITALS AND ASYLUMS.

BOLINGBROKE HOSPITAL, WANDSWORTH.

THE TREATMENT OF SEPTICAEMIA BY "FIXATION ABSCESS."

(By J. D. SPEID SINCLAIR, M.B., Ch.B., Resident Medical Officer.)

THE history of the following case is one of three months' duration, and so typical of septicaemia that I shall confine my remarks to the more salient features, without entering into the minute details of the course of the illness.

Mrs. L., aged 39, was admitted on October 19th, 1915, suffering from septicaemia following confinement a month previously. Physical examination was negative except for a slight presystolic murmur at the apex. There was no discharge from the vagina; the uterus was freely movable and normal in size. She complained of no pain, and no tenderness was elicited in the pelvis on vaginal examination.

Course.

The temperature ranged between 100° morning and 103° to 104° and sometimes 106° in the evening, accompanied by rigors, and so continued for two and a half months, in spite of treatment.

The usual methods of treatment, including antistreptococcic serum, and stock vaccine, were tried, but her condition remained unaltered.

As she was becoming progressively weaker I decided to try treatment by "fixation abscess." Turpentine (m 20) was injected under the skin below the angle of the right scapula. As this unfortunately caused considerable pain fomentations were applied every three hours. In forty-eight hours the injected area became red and swollen; on the third day after injection I detected slight fluctuation, and made an incision into the abscess, but very little pus exuded. Fomentations were continued and resulted in a copious discharge of thick pus, the patient meanwhile being more comfortable and comparatively free from pain. On the fourth day after incising the abscess a large slough was removed, and the temperature dropped to 99° and remained so for four days, when it went up to 102°, with a rigor. After the rigor the temperature became 99° and next day 98.4°. On the following day it rose to 104°, accompanied by a rigor, after which it became normal and remained so. She was discharged in due course perfectly well.

By this method of treatment the actual microbe responsible for the patient's infection is employed to stimulate the antibodies, a guarantee which cannot be given even with an autogenous vaccine.

Reports of Societies.

SHAKESPEARE AND MEDICINE.

AT a meeting of the Medical Society of London held on May 1st, the President, Lieutenant-Colonel WILLIAM PASTEUR being in the chair, Sir STCLAIR THOMSON delivered the annual oration, choosing for his subject "Shakespeare and Medicine."

Sir STCLAIR THOMSON, in the course of his oration, said that in this tercentenary commemoration it was surely very right that our profession should pay its tribute of recognition to our greatest genius, for after the great poetical subjects of love, hate, ambition, and war, there were probably no matters so frequently dealt with by Shakespeare as those in which the medical profession was concerned. There was a special reason why the Medical Society of London should take a particular interest in the most many-sided man the world had ever known, for its library contained the only authentic record of his death. This was found in the Commonplace Book of the Rev. John Ward, vicar of Stratford-on-Avon, commenced thirty-two years after the poet's death. In one of the sixteen duodecimo volumes of this work appeared

> Shakespear, Drayton, and
> Ben Jhonson had a merry
> meeting and it seems
> drank too hard for
> Shakespear died of a
> feavour there contracted.

There was no need to surmise that Shakespeare actually studied medicine, but there was abundant material to show that he had a knowledge and comprehension of it that was simply marvellous. We could appreciate and enjoy and benefit by all that poets had seen and written, without attributing to them prophetic or superhuman powers. So with the medical references in Shakespeare, the science of his medicine was decidedly of his own period, and, like all science, it had moved forward. His profound knowledge of human life and human nature remained and explained why he is, and must always be, one of our greatest masters of medicine. The mere references to various diseases, symptoms, drugs, and so forth need not be collected as remarkable evidence of the great poet's medical knowledge or insight. Sir StClair Thomson said he would refer to such matters and to Shakespeare's knowledge of contemporary medicine very briefly, and give more consideration to his astonishing acuteness of observation, his familiarity with the ways and thoughts of frail humanity, his discrimination of disease according to age, sex, and circumstances, his sensitive regard for our "brittle life," his sweet reasonableness and deep human sympathy, and his profound knowledge of that part of physiology and pathology which might be studied in the daily life of the street, the market, the tavern, the Court, the camp, or the home. These were subject to no errors of investigation; they were eternally true. The whole gamut of human life was epitomized by the humorously melancholy Jaques in twenty-eight pregnant lines.

The orator then spoke briefly of the state of medicine in the sixteenth century, and pointed out that Shakespeare, by the marriage of his eldest daughter, Susanna, with Dr. John Hall of Stratford, had plentiful opportunities for becoming acquainted with the life, habits, and ways of thought of a medical man and for picking up a fairly intimate knowledge of the practice of medicine 300 years ago.

Out of thirty-six plays medical characters were represented six times: (1) Dr. Caius in the *Merry Wives of Windsor;* (2) an English doctor, and (3) a Scottish doctor in *Macbeth;* (4) Dr. Butts in *Henry VIII;* (5) Cornelius in *Cymbeline;* and (6) the physician in *King Lear.* No character represented a surgeon. Dr. Caius was treated more as a figure of fun than as a regular physician, and it was probable that Shakespeare meant to represent a quack and not the learned Dr. Caius. Dr. Cornelius was possibly suggested by the famous physician of Charles V and simply adapted for dramatic purposes. The Dr. Butts represented in the fifth act of *Henry VIII* was no doubt Dr. William Butts, Fellow of Gonville Hall, Cambridge, and of the College of Physicians, who lies buried in Fulham Church. Cornelius played with honour and astuteness a difficult part when the Queen asked him for poison, and the physician of King Lear played his part well and sympathetically. Cerimon in *Pericles* was both a physician and a nobleman, so that the good social status of the medical man was here accepted and illustrated. No nobler panegyric of our profession could be written than that put in the mouth of Cerimon.

Quacks, who flourished abundantly in the period, were portrayed in several plays. Among such characters were Pinch, Friar Lawrence, and Helena. Quacks and medical mountebanks were found in the earlier plays, and the first practitioner of medicine for whom Shakespeare did not entertain contempt was the physician in *King Lear,* which was written about 1606, the year before the poet's daughter married Dr. Hall.

Shakespeare showed an astonishing familiarity with many purely professional or technical matters, and manifested an intimate knowledge of the history of medicine. He employed medical terms which no ordinary playwright would know how to introduce. The diseases most frequently referred to were ague, rheumatism, plagues, pestilence, fever, measles, the sweat, and leprosy, but casual mention was made of many others. Their mere mention was of no moment; what should give us pause were the frequent flashes of genius which were revealed by the insight sometimes given of the appearances, character, and progress of the disease or of the patient. That the poet should so often ascribe mental characteristics to pathological states was surprising considering the age in which he lived. By quotations the orator illustrated Shakespeare's acquaintance with a deposit of lithates, the treatment of the *embonpoint* of success, digestion, chlorosis, goitre, epilepsy, crisis, and the well-known tests of life.

A large number of herbs and drugs and other preparations were mentioned by Shakespeare. What was of more striking and general interest was the evidence of the remarkably wise and reasonable views which Shakespeare manifested on the subjects of treatment, diet, and hygiene. He did not overestimate the help of medicine, and indicated the *vis medicatrix naturae.* He justified the custom of medical note taking. Music as a remedy, especially in mental states, was frequently mentioned.

Shakespeare's medicine reflected that of the period, for in his plays were found the doctrines held at that time. Such were the belief that our bodies consist of four elements—fire, air, earth, and water; the doctrine of "humours," and the view that plants possess peculiar powers if plucked at night, and during particular phases of the moon; the old beliefs in the influence of the planets on disease, and of the moon on the mind, and that toothache is caused by a humour or a worm. Even the quackery of his age was reflected in his pages—for example, that of water-casting. He was well acquainted with blood-letting—the practice of the period—and made frequent reference to the blood and circulation, though in the latter he naturally reflected the view which preceded Harvey's discovery.

The orator then, by many quotations, illustrated Shakespeare's knowledge of the voice, consumption, air and climate, syphilis, cancer, obstetrics, public health, mental diseases, surgery, and vivisection.

Shakespeare's deep sympathy with the tragedy of suffering shone out from every page of his plays. In his concluding section Sir StClair Thomson demonstrated the insight which the poet had into the influence of sympathy upon the patient, the relationship between hope and prognosis, the value of mirth and distraction, the virtues and evils of alcohol, the advantages and effects of abstinence, the horrors of insomnia and the benefits of sleep, the characteristics of our "sad humanity" as it falls into "the sere, the yellow leaf," and finally into the attributes of death.

Shakespeare's plays would be read by physicians when every medical treatise of the present year would have been completely eclipsed, and they would continue to be studied by future generations until "there shall be no more death, neither sorrow nor crying, neither shall there be any more pain."

Sir SIDNEY LEE, in proposing a vote of thanks to the orator, congratulated him on making a notable contribution to the celebration of the tercentenary. Mr. D'ARCY POWER, who seconded, said that the imperfect writing in

the poet's autograph suggested to him the effect of disease rather than of illiteracy, as some supposed.

The vote having been passed with acclamation, the meeting was adjourned.

There were displayed many exhibits which were related to Shakespeare and his time. These included some from the Wellcome Historical Medical Museum comprising materia medica mentioned in his plays, prints of medical men of the period, engraved portraits of Shakespeare, his house at Stratford-on-Avon, the Globe Theatre, and of a copy of the bust above his tomb, an enlarged photograph of a London apothecaries' shop of the period, oil paintings of a urine-caster and of blood-letting, portraits in oils of Sir William Butts and Dr. Caius, two London Delft pots used in Shakespeare's time, and a touch-piece and proclamation used in connexion with the royal cure of the King's evil. A selection of medical and surgical works from the library of the society, augmented by loans from the libraries of Dr. Lloyd Roberts, Dr. A. F. Voelcker, and Mr. D'Arcy Power, and from the Historical Medical Museum, was also on view. Other exhibits were a cross made from Shakespeare's crabtree, lent by Mr. D'Arcy Power; an unknown portrait of Shakespeare, lent by Dr. de Havilland Hall; medicine jars, lent by Dr. Mitchell Bruce; and bookplates of the Shakespeare Memorial Library from the collection of Mr. Bethell.

THE INFLUENCE OF ANAESTHETICS ON THE BODY TEMPERATURE.

AT the annual general meeting of the Section of Anaesthetics of the Royal Society of Medicine on April 14th, the President, Dr. HAROLD LOW, in the chair, Dr. M. S. PEMBREY and Dr. F. E. SHIPWAY read a paper in which they pointed out that the influence of anaesthetics on the temperature might be exerted upon the loss of heat, the production of heat, or upon both of these processes. In man the practical methods of observation were the determination of the deep and surface temperatures, and, as a measure of the production of heat, the determination of the respiratory exchange. They had used the former method in man. Deep anaesthesia abolished the regulation of both the loss and production of heat, so that the response of the warm-blooded animal to external heat and cold resembled that seen in cold-blooded animals; a fall of external temperature diminished, a rise increased, the production of heat. It was this fact which complicated the problem. The internal temperature of a patient might show a fall, a rise, or no change, according to the conditions involved during the period of anaesthesia. A fall in the rectal temperature from 100° to 97° was within physiological range, when the whole extent of the daily variations in temperature was considered, but in the case of an anaesthetized patient subjected to an operation in a warm theatre (72° to 74° F.), such a fall might occur within one hour. During short operations of slight severity precautions against the loss of heat were not urgent, for in an adult there was, owing to the mass of the body, a reserve of heat not rapidly dissipated in a hot theatre. In such cases the advantages of warm ether as compared with cold might not be so apparent. On the other hand, in the case of a long operation or an operation upon a patient possessing low resistance the difference might be of great practical importance.

The authors had used an "open method," in which ether was dropped continuously on to two layers of domette or about twelve layers of gauze spread over a Schimmelbusch mask, which was so closely applied to the face that the whole of the respiratory current passed through the fabric on the mask. In the case of warm ether the end of the tube from the apparatus was placed under the mask and ether vapour pumped in just before each inspiration. The mask rested upon a shaped pad of flannel. With this method the temperature under the mask through which the patient breathed varied from 48.2° to 78.8° with cold ether, whereas with warm ether it was about 90°. A patient breathed about 5 litres of air per minute, and the expired air was raised to 96° or thereabouts. It was obvious, therefore, that more heat must be lost from the respiratory tract, although the expired air with cold ether might not be warmed to the same extent. With such an "open method" they had never observed a lower temperature in the inspired air under the mask than 48.2°, the temperature of the air of the theatre being 77°, and they thought that some explanation was necessary for the exceedingly low temperature recorded by some observers. The air in the mask was being warmed constantly by the skin of the face and every few seconds by the expired air. For example, with a Schimmelbusch mask of two layers of domette and a pad placed over the face the temperature of the air was 91.4° to 93.2° five minutes after the mask had been placed over the face, the temperature of the room being 71.6° to 73.4°. The mask and pad were removed from the face and ether dropped upon the domette as during an administration; the temperature of the air fell to 32°; they were immediately placed over the face, and within one minute the temperature of the air rose to 61.7°. As regards the temperature of the body, observations of the rectal temperature were necessary. The surface temperature of the skin might rise under the influence of ether owing to dilatation of cutaneous vessels, and thus increase the loss of heat so much that the internal temperature fell. With warm ether the loss of heat from the skin could be more readily compensated. The excitability of the medulla was increased by a rise, diminished by a fall, in the internal temperature. This effect upon the respiratory centre was well known, and in a more pronounced form was seen in heat polypnoea or dyspnoea. The heart was stimulated by warmth, and the exchange of gases between the blood and the tissues was facilitated by a rise, delayed by a fall, in temperature.

A normal man reacted to external cold by diminishing his loss and increasing his production of heat. The anaesthetized man, paralysed for sensation and movement, had lost this control, and the level of the chemical changes which were a measure of vital activity could be maintained only by external warmth. This loss of control involved also the possibility of an abnormal rise in the temperature of the patient if he were exposed to excessive heat. A great practical advantage of warm ether was that it enabled the surgeon to operate in a cooler theatre; the ideal must be to keep the patient warm without exposing the staff to the depressing effect of high temperatures. Apart from diminished efficiency and endurance, a warm and moist atmosphere introduced the danger of the sweat of the surgeon undoing all the elaborate precautions taken to preserve aseptic conditions.

The "open method" was not strictly open. The mask and pad confined the air to a considerable extent. The dry and wet bulb thermometers recorded 88.7° and 86° under the mask, and waved in the air of the room 72.5° and 65.3°. The breath moistened the air; the amount of carbon dioxide might be 3 or 4 per cent. of the total 250 c.cm. of air under the mask; there was, according to the closeness with which the mask was applied and the thickness of the material, a certain amount of rebreathing, which might be an advantage when the stimulating effect of carbon dioxide was required.

Dr. SHIPWAY said he had used warm vapour anaesthesia for eighteen months. One part of the evidence in favour of the method had been given in the joint paper just read; the other part was due principally to some American anaesthetists, who had shown that warm vapours were safer, and diminished the loss of heat in the anaesthetized patient. He himself had found that anaesthesia could be pushed with warm vapours to a greater depth, and with less liability for respiration to become dangerously weak. The reason was physiological in that warmth increased the respiratory activity and stimulated the heart. Induction of anaesthesia was quicker and more quiet, respiration was calmer, since warm vapours were more readily absorbed and were less irritating. Shock was less; his results had been better with warm than with cold vapours.

A discussion followed.

THE late Sir Frederic William Hewitt left estate of the value of £35,378.

THE American Proctologic Society will hold its eighteenth annual meeting at Detroit, Mich., on June 12th and 13th under the presidency of Dr. T. Chittenden Hill of Boston. Among the communications to be presented are reports by Dr. Dwight H. Murray and by Dr. L. J. Hirschmann on the treatment of pruritus ani by autogenous vaccines.

Reviews.

ON MODERN METHODS OF TREATING FRACTURES.

THERE are movements—not to call them fashions—in surgery as in other spheres of human activity, and for a generation the thoughts and the ingenuity of surgeons have been turned mainly to the devising and perfecting of abdominal operations. The war has made the subject of fractures and injuries of joints very urgent on its practical side. Many new problems relating to complicated fractures are arising and the experience of civil practice has not afforded adequate opportunities for their solution. It has to be recognized that the immediate treatment of fractures in the war, not only of complicated fractures, whether compound or not, but also of simple fractures, calls for the adoption of procedures at the field ambulances which shall be then and there practicable, on a large scale, under the trying conditions which there exist, and with the means available, which are necessarily limited. It is true that when such cases reach the casualty clearing stations more complicated procedures may be feasible by way of operative interference not possible in the field ambulances, to say nothing of the first-aid posts. But, in deciding on any procedure to be undertaken at the casualty clearing station, the surgeon must have constantly in mind the practical questions which arise in regard to the safe transport of the wounded man to the base, and even beyond that point in hospital ships. With these practical considerations in mind, for they are essential elements of sound treatment in war, we sought guidance in Major HEY GROVES's book *On Modern Methods of Treating Fractures*.[1] The position with regard to fractures is of urgent importance alike to the individual wounded soldier and to the nation, and on that account we cannot gloss over opinions which we believe to be erroneous, more especially when expressed by high authorities.

We regret to have to say that, in our opinion, formed after careful study of the book, Major Hey Groves does not express the British view of what is considered modern and best. The author shows evidence of having come under the influence of the German school; this in itself is no drawback, for it is well to try all things, but it is necessary to hold fast that which is good. The trouble is that the author does not seem to have mastered the teachings of the British school. This is doubly unfortunate, for one of the greatest geniuses of all countries in this particular branch of surgery was the late Mr. Hugh Owen Thomas, M.R.C.S., of Liverpool. A study—it must be close and very careful of details—of Thomas's methods would preserve for our country the reputation which Major Hey Groves seems disposed to give to Bardenheuer.

The non-operative treatment of Lucas-Championnière (massage) and the operative methods of Arbuthnot Lane are freely dealt with, but the prominence assigned to them is so great that the book fails to give a representation of British procedures applicable to conditions arising in the present war, or even to those which occur in civil practice in times of peace. From the operative point of view the methods of treatment described are not suitable for general adoption. From the non-operative point of view we doubt whether the views advocated are better than those referred to in the first chapter of the book, in which the practice of the surgeons of ancient Egypt is mentioned.

We will refer briefly to the views of the author upon one of the commonest of fractures—Colles's—as an illustration of failure to describe what we may call British practice of to-day. The treatment advocated (p. 28) for "a case of Colles's fracture of the usual variety with impaction and slight deformity. . . . For the moment it does not matter if the case is one of sprain, separated epiphysis, or fracture," is as follows: "The patient is to be seated opposite the surgeon and the hand gently taken in his and light massage applied. . . . The whole of the first séance lasts for about twenty minutes. . . . The arm is then lightly bandaged to a splint—of which Carr's is certainly the most comfortable. . . . Having arrived at this stage, arrangements should be made to have an *x*-ray picture taken." When dealing with Colles's fracture "with much displacement of the fragment," the author writes: "In the first place, it is wise to be guided by one's estimate of displacement by the *x* rays rather than by examination of the hand." What is to happen to men who suffer in the wilds of Africa, the steppes of Russia, in the bogs of Ireland, the Highlands of Scotland, or in Wild Wales, from this very common fracture? "The replacement of the fragment . . . should be made only after the limb has been soothed and pain abolished, if possible, by the preliminary massage. If this has been highly successful, it may be possible in the hands of an expert to carry out the reduction with no other anaesthesia than that induced by the stroking. But for most practitioners, with whom the author would include himself, it is seldom possible to accomplish this sleight of hand, and recourse must be had to general anaesthesia" (p. 31). This quotation indicates a lack of acquaintance with the practice in Britain of those who have studied the epoch-making work of Hugh Owen Thomas. We would point out that the whole *séance* of reduction of the deformity and fixation of the damaged parts in suitable splints—the "setting of the bone"—takes as a rule less than one minute by the method advocated formerly by Thomas and now by Robert Jones.

As another illustration we may take what is said of the treatment of fractures of the femur by the splint which bears Thomas's name (pp. 57 and 58). Thomas's description is to be found in his book published about forty years ago, and attention has been prominently directed to it by correspondents and contributors in recent issues of the JOURNAL. Major Hey Groves suggests no fewer than five modifications of Thomas's splint, and does not think that even then it can be as efficient as his own wire cradle. The object of his modifications is to make Thomas's splint effective, but the views of those who have practical experience of that splint properly constructed and properly applied can best be stated by quoting the advice Thomas gave some forty years ago: "To the younger practitioners of surgery I would urge them to be adepts practically, before introducing alterations, which too frequently in the absence of experience must be either useless or injurious."

The illustrations of pathological conditions of bones given in the book are very good, and so are the models of surgical appliances for operative procedures. Most of the latter, we believe, will afford a curious study of the operative customs of modern peoples when the sedimentary deposit of this war is subjected to analysis by the future historian in search of the bed-rock. We feel rather confident that these relics will be either extremely localized or very sparsely diffused, and that the palaeontological place assigned to them will be on a shelf for fleeting fashions in modern methods of treating fractures.

[1] *On Modern Methods of Treating Fractures.* By E. W. Hey Groves, M.S., M.D., B.Sc.Lond., F.R.C.S.Eng. Bristol: J. Wright and Sons, Ltd.; London: Simpkin, Marshall, Hamilton, Kent, and Co., Ltd.; Toronto: The Macmillan Co. of Canada, Ltd. 1916. (Med. 8vo, pp. 298; 136 figures. 7s. 6d. net.)

JACOBSON'S OPERATIONS OF SURGERY.

IT is probably to most people always more or less a matter of astonishment that in ordinary times so many books on medical science find their way into the market. It is something more than astonishment that fills the mind when we find the output little lessened in the midst of war. To issue a new edition of a world-famous book entails enormous labour on editors and publishers, if the work is to be maintained at its previous high standard of excellence both in matter and in form. This hard task has, we believe, been most successfully accomplished in the new edition of *The Operations of Surgery (Jacobson)*[2] by Messrs. ROWLANDS and TURNER. Let us say at once that the new "Jacobson" ranks easily first as the finest work in its subject in our own and probably in any other tongue. Books on operative surgery too frequently are hard, rigid—or shall we say cadaveric? Jacobson, above all things, is a living human book, whose sole interest is the welfare of the patient.

The work consists of two handsome volumes, creditable in every bibliographical sense to the well-known publishing house which issues them. In the first volume the operations on the head and neck, thorax, vertebral column, arm, and leg, are described; the second volume is devoted

[2] *The Operations of Surgery (Jacobson).* By R. P. Rowlands, M.S.Lond., F.R.C.S.Eng., and P. Turner, B.Sc., M.S.Lond., F.R.C.S. Eng. In two volumes. Sixth edition. London: J. and A. Churchill. 1915. (Roy. 8vo, pp. 1040 and 940; figures 410 and 388. £2 10s. net.)

entirely to the operative work of the abdomen—this apparently unequal division of regions being demanded by the increased attention given in recent years to the latter branch of surgery. In the new edition the method of description of each operation followed in earlier editions has been preserved, and, indeed, extended. It is so characteristic that it is worth examining. Let us take, for example, the operation of removal of the breast. Before the actual description of the operative procedure is reached the authors have discussed important matters connected with it under these headings: (1) Indications; (2) results and dangers of the improved operation for removal of malignant disease of the breast; (3) local recurrence and the present-day extensive operations; (4) wide and thorough operation; (5) careful and judicious selection of cases; (6) continued frequent supervision of patients. Each of these points is fully entered into, the experience of all eminent operators narrated, and the permeation theory described and illustrated, not in a perfunctory, but in an educative and enlightening fashion. Then the operation itself is described step by step with diagrams and photographs, practical hints in technique, suggestions for the comfort of the patient, references, and footnotes, so that every conceivable difficulty is met. Whenever possible, especially in the interests of clear understanding, the actual words of an authority are quoted. Indeed, it is one of the eminently valuable features of the work that so many and such full literal quotations are made. It will readily be appreciated that when this method is adopted all through the two volumes Jacobson is much more than a textbook on operative surgery. Its title indicates the intentions of the original author to build a work in which the veritable manipulative part of surgery and its tools occupy a small place in comparison with the why and the wherefore and the when of a particular mode of treatment. In other words, it is primarily the interests of the patient that are in the heart of the authors, and they force that interest on the mind of the reader. The book is a philosophical and artistic yet eminently practical treatise on the operations of surgery.

Frankly we make no attempt to criticize in detail. We have carefully perused very many pages, and have been constantly impressed with the elaborate detail, the inclusiveness of every description, the adherence to reliable personal experience, the kindly acknowledgement of faults and mistakes, the friendly guidance to the young and less expert operator, the graceful, scholarly writing. Many features of the work project themselves before our minds, and one of the most prominent is the well-balanced sanity of view on disputed points. Two examples may be quoted: In discussing the operations of Harrison and Edebohls for chronic nephritis, the authors say that consideration of the pathology of Bright's disease and the dangers incident to the operation do not lead them to expect from these operations more than may be looked for after judicious long-continued medical treatment. In considering the dire effects and heroic treatment of chronic intestinal stasis, lately so much discussed in England, no prejudice is raised, but several pages are given of verbatim quotation from the writings of Lane and others; yet withal the writer enunciates his own views with absolute clearness. "Personally I am unable to agree with his (Lane's) views concerning either the pathology or treatment of constipation. . . . Although Sir A. Lane's views do not seem to be supported by adequate proofs or to find much favour yet in this country they are certainly worthy of our serious consideration. Therefore I think it best to give his own words and illustrations." An unbiassed, unprejudiced outlook like this permeates the whole work.

Minor criticisms may be made on some small omissions. There is no mention of the frequent occurrence of the thick deposit of phosphatic débris on the edges of a suprapubic cystotomy wound and how to deal with it. We do not find the credit of first performing laparotomy for some forms of tuberculous peritonitis clearly allotted. It is our recollection, though we cannot find the original reference, that John Duncan of Edinburgh first advocated that form of treatment. Nor is there any mention of precise anatomical details in the method of injecting alcohol into the second and third divisions of the fifth nerve, though Harris's paper is referred to with the remark that the method is of value. We should have liked a more exact statement as to the mode of applying the loop of jejunum to the posterior wall of stomach in posterior gastro-enterostomy—whether it shall be anti-peristaltic or iso-peristaltic—a point of real difficulty, in our judgement almost the only one in the operation. And last, we venture to think that more emphasis than mere mentioning might be laid on Macewen's method of controlling the abdominal aorta. The reviewer has done it himself on at least four occasions, and thinks that no other is worth mention.

A few instances have been observed in which the proof reading has slipped past blunders; these are, in volume i, middle of page 344, bottom of page 345, page 916, line 11; volume ii, page 476, references to figures wrongly made twice, page 699, eleventh line from top, and page 700, third line from bottom.

This, then, is a great work, a worthy exposition of a great art as it is practised by British surgeons (for, after all, the references to surgery outside the British empire are few in comparison with those inside). Not only are the authors to be highly complimented on producing it with such commanding success, but the surgical part of the profession is to be congratulated on the possession of such a treasure house of surgical learning and skill.

BOOKS ON CHEMISTRY.

FOR many years the student of physical chemistry has learnt to divide the properties of chemical substances into three groups in relation to their composition and structure. Some properties, such as weight, are termed "additive." Others depending only on the number of molecules concerned are termed "colligative"; gaseous volume, and the elevation of the boiling point or depression of the freezing point by substances in solution may be quoted as examples of colligative properties. Properties of the third group, depending on the arrangement of the atoms in the molecules of substances, and not merely upon their kind or number, are termed "constitutive"; and one of these, studied in the forties of last century by Kopp and elaborated by many chemists since his day, has recently been submitted to an elaborate reconsideration by Mr. G. LE BAS.[3] He has written a highly technical account of the molecular volumes, that is, the volumes occupied by the molecular weights, of a great number of liquid chemical compounds. The value of such work lies in this—that careful study of the molecular volumes of organic and other compounds often enables deductions to be drawn as to the constitutions of their molecules, the ways in which the atoms are grouped therein, and often as to the valencies of the atoms concerned. In Kopp's hands molecular volume appeared to be an additive property; now that its partially constitutive character has been very thoroughly tested, its study becomes extremely helpful to the chemist. Mr. Le Bas's volume is filled with facts and figures, and comparatively little attention is given to the inferences to be drawn from them. The book is accordingly one for the advanced student of chemistry only, and to him it should prove both interesting and instructive.

The second edition of Mr. J. N. FRIEND'S excellent book on valency[4] has been brought up to date by the inclusion of many pages devoted to the theories of valency that have resulted from Sir J. J. Thomson's recent hypotheses as to atomic structure and electrons. The valency of an atom or element is defined as its power of fixing or combining with other atoms. From the chemical point of view it is quite the most important and characteristic property an element possesses. It has been the subject of unceasing study since the idea of an atomic attractive force (the modern "valency") was first clearly formulated by Frankland in 1852; before that time the conception of chemical affinity was inevitably vague, and could not be studied from the quantitative point of view for want of any clear conception of the differences between atoms and molecules. Yet for all this study our theories of valency are but

[3] *The Molecular Volumes of Liquid Chemical Compounds from the Point of View of Kopp.* By G. Le Bas, B.Sc.Lond. Monographs of Inorganic and Physical Chemistry. Edited by A Findlay, D.Sc. London: Longmans, Green and Co. 1915. (Med. 8vo, pp. 282. 7s. 6d. net.)

[4] *The Theory of Valency.* By J. N. Friend, D.Sc.Birm., F.I.C. Second edition, revised. Textbooks of Physical Chemistry. Edited by Sir W. Ramsay, K.C.B., F.R.S. London: Longmans, Green and Co. 1915. (Cr. 8vo, pp. 206. 5s. net.)

slender growths of small heuristic value; they do not explain all the known facts, and they have led to singularly little in the way of research or discovery. There is good reason to believe that the problem of valency will ultimately be solved in terms of positive and negative electricity. Dr. Friend gives a thorough account of the history of the idea of chemical valency in his early chapters; the bulk of the book is occupied with the valency of the nine groups of elements in their periodic classification; the last fifty pages are given to the various physical, electronic, and electrochemical theories of valency. The text is clearly written, and demands from its readers no more than an elementary knowledge of physics and chemistry. Comparison with the only other book on the subject with which we are acquainted—namely, Hinrichsen's contribution to the chemical *Sammlung* of Ahrens, dated 1902—shows how greatly theoretical chemistry has profited during the last dozen years from the incursions of experimental physicists and electricians. Mr. Friend's volume may be warmly recommended to the attention of all who are interested in the progress of chemical science.

Mr. H. J. H. FENTON has recently written a little book[5] intended to serve as a brief introductory outline of physical chemistry for fairly elementary students. The text covers the ground satisfactorily; it describes results rather than methods, detailing the views at present held, but rarely attempting to set out any of the experimental means or observations whereby such views have been reached. As a result there is a detached and academic air about the physical chemistry taught in this volume that makes the subject seem unreal or even dry; perhaps it is inevitable that this should be so. The book is designed for use in the study, not the laboratory.

A new *Textbook of Elementary Chemistry*,[6] by Professor A. SMITH, makes a bold attempt, as the author says, to present the subject in a manner that is both rational and interesting. He thinks that while one sex will take especial interest in explosives, metallurgy, mortar, plaster, and cement, the other will be more attracted by plastics (from which hair-combs and artificial silk are made), starch, sugar, soap, and the digestion of foods. He attributes considerable importance to the work of the Russian author, statesman, and chemist, Lomonossov, in the middle third of the eighteenth century; but only makes incidental mention of so distinguished a chemist as Berzelius. The dry facts of inorganic chemistry are reduced to a minimum in the text; interest and colour are supplied by the inclusion of numerous economic or industrial details of the practical applications of chemistry to the arts and manufactures. How far a short elementary textbook constructed on these lines is capable of giving the student of chemistry a solid foundation on which to build is a matter that can only be settled by experience

In the British edition of his small laboratory manual[7] of elementary chemistry, designed as a companion to the textbook mentioned above, Professor A. SMITH sets out about a hundred practical exercises for the student. These vary in difficulty and complexity from the dissolving of caustic soda in water to the estimation of molecular weights by determination of depressions of freezing points. The text is brief and concise, and is abundantly interspersed with interrogation points to mark the moments at which the student should stop and make intelligent observations, or ask himself intelligent questions about the phenomena observed. Professor Smith undoubtedly covers a great deal of ground in his *Laboratory Outline;* the student who works through it will have every opportunity for acquiring a sound knowledge of practical chemistry.

Mr. W. M. HOOTON's brief manual of *Qualitative and Volumetric Analysis*,[8] written for beginners in the science of inorganic chemistry, gives a synoptic and tabular account of the reactions whereby metals and salts may be recognized and estimated by volumetric analysis. A certain number of the organic substances commonly met with are also taken into consideration; the rare metals are omitted from the general tables. The text has been cut down to a minimum, and is not self-explanatory; it is of a nature to appeal to the student's memory, and not to his intelligence. The use of such books is inevitable where but little time can be given to the study of chemistry; Mr. Hooton's volume is a good example of the class.

One of the platitudes of economics to which the study of industrial chemistry has given rise is that the prosperity of a country may be estimated by its consumption of sulphuric acid. A technological manual on *Sulphuric Acid and Sulphur Products*,[9] recently published, estimates the world's annual production of the acid at seven or eight million tons; in Europe some four million tons are produced a year, the quantity having quadrupled since 1878. It is stated that the world's production of sulphur has been revolutionized by the discovery of vast subterranean beds of the pure element in Louisiana and Texas; the sulphur is extracted most ingeniously in the form of an emulsion by forcing down through iron pipes superheated steam which melts and mobilizes it, and compressed air which brings the emulsion to the surface. Dr. MARTIN and Major FOUCAR give numerous interesting details of the manufacture of sulphuric acid, sulphur dioxide, various sulphites, carbon disulphide, and hydrogen sulphide, which is employed for the purposes of chemical analysis and also in the manufacture of a few dyes. The book is unequal and sketchily written in places; it is well illustrated, and should be of interest to those who are concerned in any way in the subjects with which it deals. Numerous references to the literature are included.

NOTES ON BOOKS.

PROFESSOR PETER THOMPSON has recently printed eight papers[10] representing part of the investigations carried out in the anatomical department of the University of Birmingham during the last few years. Several of these papers have appeared before, three in the *Journal of Anatomy and Physiology*. The book leads off with a full description, written and illustrated by the editor, of a human embryo 7 mm. in length, presumably twenty-six days of age, cut in serial sections 10 μ in thickness; this presents numerous points of interest to embryologists. Six of the papers deal with embryological subjects. The editor is to be congratulated on the general excellence of the book, which shows abundant evidence of the activity of research in the anatomical school over which he presides. The get-up of the volume and the illustrations are excellent.

The effort to set out the most recent theories of scientists and sciolists in forms readily intelligible to the layman is one that has always had an attraction of its own. We have before us three books[11] of popular psychology that are admirable examples of their type, well written, magisterial in style, but, so far as their contents go, of the nature of a Barmecide feast. In one of these volumes Dr. PUTNAM gives an account of *Human Motives*, from the point of view of medical psychology. Dr. CORIAT, in his book on *The Meaning of Dreams*, offers a popular description of psycho-analysis and interpretation on conservative and not unduly Freudian lines. Dr. BRUCE'S book on *Sleep and Sleeplessness* presents a simple and rational account of the subject, and has the virtue of emphasizing the harmfulness of hypnotics as used by the layman.

[5] *Physical Chemistry for Schools.* By H. J. H. Fenton, M.A., Sc D., F.R.S. Cambridge: The University Press. 1916. (Cr. 8vo, pp. 223. 3s. 6d. net.)

[6] *A Textbook of Elementary Chemistry.* By A. Smith, B.Sc.Edin., Ph.D Munich. London: G. Bell and Sons, Ltd.; New York: The Century Co. 1915. (Post 8vo, pp. 467; 6 plates, 98 figures. 5s. net.)

[7] *A Laboratory Outline of Elementary Chemistry.* By A. Smith, B.Sc.Edin. London: G. Bell and Sons, Ltd. 1915. (Cr. 8vo, pp. 152; 32 figures. 2s. net.)

[8] *Qualitative and Volumetric Analysis.* By W. M. Hooton, M.A.Oxon., M.Sc., F.I.C. London: E. Arnold. 1915. (Demy 8vo, pp. 86. 3s. net.)

[9] *Sulphuric Acid and Sulphur Products.* By G. Martin, D.Sc. Bristol, D.Sc.Lond., Ph.D., F.C.S., and Major J. E. Foucar, B.Sc.Lond. Manuals of Chemical Technology, V. London: C. Lockwood and Son. 1916. (Roy. 8vo, pp 85; 37 figures. 7s. 6d. net.)

[10] *Studies in Anatomy from the Anatomical Department of the University of Birmingham.* Published by the Council of the University, and edited by Professor P. Thompson Birmingham: Cornish Bros., Ltd. 1915. (Roy. 8vo, pp. 208; illustrated. 10s. net.)

[11] (1) *Human Motives.* By J. J Putnam, Professor Emeritus, Diseases of the Nervous System, Harvard University. (2) *The Meaning of Dreams.* By I. H. Coriat, M.D. (3) *Sleep and Sleeplessness.* By H. A. Bruce. The three volumes belong to the Mind and Health Series, edited by H. A. Bruce. London: W. Heinemann. 1916. (Cr. 8vo, pp. 196, 208, and 228 respectively. 5s. net per volume.)

INFANTILE MORTALITY AND THE RELATIVE VALUE OF MEASURES FOR ITS PREVENTION.

THE subject of the Milroy Lectures before the Royal College of Physicians of London was "Infantile mortality and the relative practical value of measures directed to its prevention."[1] The course was delivered by Dr. S. G. MOORE, who, as medical officer of health for Huddersfield, has had exceptional opportunities of appreciating the value of the various measures suggested, inasmuch as Huddersfield is a town which has been a pioneer in these matters.

The Infant's Right to Live.

In the early part of his first lecture Dr. Moore laid down the proposition that a child was born into the world possessed of certain elemental natural rights, quite apart and distinct from any legal right to property it might inherit. Every infant held these rights directly from those from whom it derived its being—that is to say, from its mother and father—and indirectly from the community or State into which it was born. The existence of its direct rights from its immediate parents did not nullify its indirect rights from the social organization as a whole. The infant had a right to a reasonable chance to survive to such an age-period that its own action might influence its destiny, and had a right, therefore, to a reasonable degree of protection from external influences which might imperil or destroy its life. Infant deaths from summer diarrhœa were practically absent from the returns in winter, but were numerous in summer. Infant deaths from bronchitis and pneumonia were practically absent from the returns in summer, but were numerous in winter. Therefore, Dr. Moore argued, in these forms death comes to infants from external conditions, and every infant had the inalienable right, held both from its parents and from the State, to be protected from these as well as from other external causes of death. He thought it necessary to lay down these propositions in order to oppose them to two doctrines which often found expression. One was, that as many infants were born to lives of misery, and would never do any good, they might be left to die. The other was that heredity counted much and environment little; that acquired characters were not transmitted, and that therefore most, if not all, of the labour in the field was vain.

Retrospect.

He then sketched the special work done in Huddersfield. First of all, in 1902–3, the reports of deaths from all causes were scrutinized with a view of selecting the disease, or group of diseases, likely to repay special preventive measures. Infant mortality was selected for five reasons: (1) The numbers of deaths of infants constituted so large a proportion of the total deaths, that any substantial reduction of the infant mortality figure would effect a material reduction of the general death-rate. (2) The causes of deaths of infants in quite a considerable proportion were manifestly preventable. (3) The lives to be saved were at the threshold of existence. (4) When an infant dies it is through no fault of its own; it appeals from its helplessness and its innocence. (5) The cost promised to be almost negligible. In 1904 a detailed report was presented to the sanitary authority, and in 1905 it approved a scheme of work against infant mortality, including the voluntary notification of births to the medical officer of health, and the visitation in their homes of all newly born infants immediately after birth by women doctors, followed by voluntary workers. The officials were informed that no inquiry would be made as to how many visits they paid. They were not to be in a hurry, but they were instructed to spare neither time nor effort in the endeavour to be sure before terminating the visit that the mother was instructed fully in the knowledge essential to the welfare of her offspring. Two forms of advice, "short" and "extended," were printed, and were to be left for the information of the mother.

In 1906 parliamentary powers were obtained requiring the notification of births to the M.O.H. In the following year Parliament passed an Act enabling every sanitary authority to require the notification of births, and in 1915 notification was made compulsory throughout England and Wales.

Dr. Moore then gave a summary of conclusions expressed in the reports of the medical officer to the Local Government Board on infant mortality. In commenting upon them, Dr. Moore said that the greatest service they rendered lay in pointing out that sickness and death in infancy meant sickness and death in later life *pari passu*, and continued as follows:

> The demonstration of the existence of "blots" in good areas and of the existence side by side of areas of high and of low infant mortalities is of great significance. Not climate, nor topography, nor municipal sanitation, but the lives, the habits of the mothers in the homes, determine the difference.
>
> I venture to express the opinion that throughout these conclusions too much importance is given to general measures. Because infant mortality is a part only of the general death-rate, and because it is a component thereof which presents special characteristics, particular action is needed for its elimination—procedure immediately directed against those influences and conditions which are peculiarly inimical to the young.
>
> So much in passing; I must recur to this point. A paragraph in the first report does not lead to the same conclusion as another in the second. They are not irreconcilable. The former tends to show that there is no evidence that the non-domestic employment of mothers is injurious. The latter is to the effect that such employment "must necessarily" do harm. I agree with both of these apparently divergent conclusions. I have reason to know for my own district that the former is well founded (I went into the question in 1908), and I am convinced that the latter must be true. But to discuss the matter now would take too long. The influence of the industrial employment of women on family life generally, on child-bearing, and on the health and lives of the infants and children has not yet received adequate attention. It should be insisted upon that the family is the unit of the nation. The sum of the families *is* the nation. This social question of female industrial employment is so great and so complex that no individual can investigate it adequately, even in a lifetime, yet it needs investigation.
>
> It may be worth while to express the opinion that the explanation of the apparent irreconcilability of these particular conclusions may be the following: Under satisfactory conditions of family life generally, if in a section of a community the mothers worked all day away from the homes we would be able to show statistically that such employment caused an excessive infant mortality. But the existing conditions are so bad, the infant mortality is so excessive, the margin between the inevitable minimum (of something less than 40 deaths per 1,000 births), and the mortality which actually prevails is so great that the effect of the mother's absence from her duties to her offspring is masked by the additional resources commanded by her wages.
>
> I cannot readily accept the dictum that the experience of organizations which supply food to expectant mothers shows that the condition of the mother before parturition has a definite influence upon the capacity for suckling. On the face of it that conclusion appears to be unavoidable. How can an ill-nourished woman so develop during pregnancy that the mammary tissue shall become adequate? It is not to be expected. But we have yet to hear advanced the natural corollary that the uterine tissues of the under-nourished woman fail to increase and to function (except in such cases as come under the proper designation of asthenia). Moreover, we know that the trophic nerves are able to exercise a selective faculty. And also the oft-cited phenomena of the very low infant mortality observed during the Lancashire cotton famine and the siege of Paris increase the difficulty of acceptance of this opinion. True, other factors played a part in Lancashire and in Paris, but it is undoubtedly the case that infants were breast-fed by mothers who had undergone privation during pregnancy to an extreme degree, and who, moreover, were semi-starved during suckling. Nevertheless, all women generally, and all mothers in particular, hold the natural right at the hands of their fathers, husbands, and sons to be well nourished at all times. I merely deprecate this particular statement about nourishment and suckling lest it should form a reason, or an excuse, to withhold from the infant its natural and only proper food.

In concluding his first lecture, Dr. Moore dealt briefly with the painful and difficult phase of the infant mortality question which related to unwanted infants, and incidentally referred to what he, following many other writers,

[1] The lectures were published more at length in the *Lancet* for April 22nd and April 29th.

called the "mothering" of babies. "No doubt," he said, "robust infants can survive in its absence, but, on the other hand, it is well to recognize the fact that there is an inherent instinct and appetite in the young mammal to huddle and nestle against its mother's body, and to receive warmth and nourishment therefrom. This experience has led me to believe that in all cases these things are necessary for the well-being of infants, and that there may be certain cases where the lack of them determines the balance against the infant, even to the extent of causing its death."

Influence of Special Measures on Infant Mortality.

Dr. Moore began his second lecture by saying that while he substantially accepted the statements in the official publications of the Local Government Board, he was of opinion that in them too great importance was given to general sanitation as accounting for reduction in infant mortality observed during recent years, and too little to work specially directed to meet the particular circumstances of infant life. In Huddersfield the infant mortality-rate showed a distinct decline in and after 1907, when special work against infant mortality in that town came into full operation. After pointing out that it was well known that infant mortality was low in rural and generally in small urban districts, particularly in agricultural areas, he said that it was equally well known that the standard of sanitation in these very places was of the lowest, and continued as follows:

I by no means wish to suggest that general sanitation, and especially municipal cleanliness, do not favourably affect the health of infants as of inhabitants generally, but, speaking as one who has given close attention to the problem for a long while, I would lay stress upon the view that other factors are of a greater significance and importance. It is well known that a heavy toll on the lives of the very young is levied in industrial districts where the employment of women is at a minimum but where the standard of life is low as well as in other industrial districts where their employment is at a maximum. I believe that the explanation of the former phenomenon is that the infants are individually neglected in the homes of the people, and I have no doubt that a breast-fed baby living in insanitary surroundings but cared for by its mother would have a very much greater chance of surviving than one bottle-fed and neglected by its mother, however excellent might be the sanitation of the house and the district in which it lived. Instances have been adduced where in the same street in certain families there have been many surviving children, and in other families of a similar social grade the survivors have been few.

Relation of Infant Mortality to Rate in Next Four Years of Life.

In dealing with this subject Dr. Moore mentioned the statement that the result of preserving the lives of infants would have a generally bad effect on succeeding ages—a statement based on the argument that heredity rather than environment should be taken into account. The statistics of Huddersfield did not support such a contention:

The curve (he said) showing the death-rates per 1,000 per annum at ages from 1 to 5 years follows very closely the corresponding curve at age 0 to 1 year. But if the work against infant mortality were only temporary in its influence, the curve at succeeding ages ought to have shown a rise. Of course, this is not the case. I have referred to these arguments against the utility of endeavouring to reduce the infant mortality figure elsewhere and from another point of view. It really does not appear to be worth while to labour the point, but I will recall the fact that in the Local Government Board Reports on this subject the same demonstration is given, and over extended age-periods.

The result in Huddersfield was corroborated by a study of the death-rates at each of the first five years of life for England and Wales calculated per 1,000 survivors at each age-period. The curves, after making allowance for the greater vulnerability at the earliest age-period, substantially followed one another—that is to say, a reduction in the infant mortality-rate (deaths under 1 year of age) was followed by a reduction in the mortality in succeeding years.

The Principal Causes of Infant Mortality.

In Huddersfield during the period 1907–1914 there was a positive reduction of infant mortality. An analysis of the principal causes showed that during that period the proportion of deaths attributed to premature birth rose from 14.9 per cent. to 17.8 per cent.—a movement compatible with the belief that preventable deaths had been eliminated in part, thus increasing the proportion of deaths hitherto considered to be unavoidable. This belief was strengthened by the fact that of the other principal causes diarrhoea, bronchitis, convulsions, whooping-cough, and measles all showed a decline, and pneumonia only an increase. Under the head atrophy, debility and marasmus, there was also a very marked decrease—from 13 to 8 per cent. of the total deaths, a fact which militated against the common view that many deaths at early ages result from a lack of vitality consequent on premature birth.

The Relation between Birth-rate and Death-rate.

Both the birth-rate and the death-rate were declining in England and Wales. In the period 1871–1915 the reduction in the birth-rate amounted to 32.7 per cent., while that in the death-rate was 36.8 per cent.; but the birth-rate had fallen about 12 per 1,000 and the death-rate only 8 per 1,000. The fall was fairly uniform in both curves, but that of the birth-rate was the steeper, so that the two tended to run together, and it was necessary to keep in mind the fact that whereas there was nothing to prevent the continuance in the decline of the birth-rate, which might even be accelerated, human vitality fixed a point below which the death-rate could not fall.

Reduction of Infant Mortality in Large Towns.

From an examination of infant mortality figures in thirty of the large towns of England and Wales, and comparing the period from 1877 to 1906 with the period 1907 to 1914, he drew two conclusions—first, that the reduction of mortality and the saving of infant life had been very substantial; and, secondly, that it had not been gradual; improvement in sanitation, however, had been gradual. The same was true of municipal cleanliness, the spread of education, the habits of the people, and so on. The mean infant mortality figure prior to the special work against infant mortality in Huddersfield was 156; the mean since that work had been in operation was 105. The calculation of the complete expectation of life showed that this particular work had added three years of life to each generation.

Provision for Infant and Child Welfare.

Dr. Moore then passed in review the existing provisions for infant and child welfare, including the Children's Act and the Notification of Births Act. The notice to the sanitary authority of the existence of the infant was followed more or less completely and more or less systematically by a visit to the infant in its home. The quality of the services rendered was very unequal, and left much to be desired. From a scrutiny of the list of health societies issued by the National League for Physical Education and Improvement, it appeared that of the 489 different associations 9 were national, 70 were municipal—in the sense that they were associated with and assisted by different sanitary authorities, and the remainder purely voluntary. Dr. Moore estimated that the societies altogether assisted 155,000 infants annually. In six localities antenatal work of various kinds had been established; this side of the work was still very recent and undeveloped, and no doubt much more would be done in the near future. The movement for the establishment of milk dépôts seemed to have languished; 11 were opened between 1899 and 1906, 1 in 1910, and 1 in 1912. Four had been closed. The cost in relation to the number of infants helped appeared to be the stumbling block. There was no doubt that the cost per meal of pasteurized milk was considerable. On the other hand, it was imperative to provide food for infants which would not destroy them. The conditions of the industrial milk supply in this country were such that in hot weather the only milk commercially available for poor people did, in fact, destroy babies in large numbers.

British Medical Journal.

SATURDAY, MAY 6TH, 1916.

URGENT DEMAND FOR MEDICAL OFFICERS.

STATEMENT BY THE WAR OFFICE.

THE Central Medical War Committee has the authority of the Director-General Army Medical Service for stating that a considerable number of medical men is required at once for service in the Royal Army Medical Corps. The development of military operations has caused a large proportion of the medical officers who have hitherto been serving in this country to be detailed for service abroad, and it is essential that there should be others ready to meet future demands.

This request for officers has come before the enrolment scheme of the Central Medical War Committee has been completed. The Committee is therefore compelled to ask for volunteers from among both the enrolled and the unenrolled. Those willing to join within a month should send their names at once to the Central Medical War Committee, 429, Strand, W.C., or make direct application to the War Office.

ENROLMENT: AN EXPLANATION AND AN APPEAL.

SIR,—During the next few weeks the course of events seems certain to lead to renewed fighting, to very many casualties, and to a call for more and more doctors to tend the sick and wounded. The supply could be met—as, if other methods fail, doubtless it would be met—by conscripting medical men, but some time ago the War Office recognized that a certain scheme of voluntary enrolment could be made to give them what they wanted and in a better way. The working of the scheme, as is now well known, was entrusted in England and Wales to the Central Medical War Committee, a committee representing the profession at large and the several medical corporations and schools, and in close touch with the Insurance Commission, and the great Government departments which employ medical men.

This scheme of voluntary enrolment, as contrasted with conscription, appears to present certain very great advantages, in which both the community at large and the individual practitioner will have their share. In any circumstances some doctors must go and some be kept at home, but whereas with conscription the task of selection might fall into the hands of local lay tribunals, the voluntary scheme provides that in each district it falls to a local committee of medical men, whose professional knowledge and knowledge of local conditions enables them to form a better judgement both of the needs of the civil community and the difficulties of the individual practitioner; while in any case from their decision an appeal lies to the Central Committee.

This scheme of voluntary enrolment has been framed to secure also a due rotation of work and sacrifice; so that when the volunteer has completed the year of service for which he signs on he is free to return home, his place with the army being taken by another—an arrangement fairer to himself and better for his civil patients than indiscriminate compulsion.

Now, the success of the scheme obviously depends on the number of enrolments. If the response is meagre, the Army Medical Department will be starved, or rather conscription must come. Moreover, the correlative provision for the civil population, and the fair distribution of sacrifice, will be imperilled. It is true that the response so far has been fair, but, with the spring campaign upon us, the need for more men, and yet more, is so pressing that there is considerable anxiety even in respect of the immediate future. The scheme can only work well if all, or practically all, our brethren of suitable age enrol themselves. However, we find that, not unnaturally, some are hesitating to enrol lest a lack of enrolments should expose them unfairly to be summoned. This cannot, in any case, happen, since the Committee has decided that no calls shall be made until 75 per cent. are enrolled. We are all proud of the record of our profession in the past, and of its splendid service in this war; we shall be still more proud if it rises to meet the crisis and will deal with it by voluntary effort. If by age and office we are sheltered from the claims of service, we know none the less clearly how hard is the call upon many of our younger brethren, with many of whom we have been in correspondence. Domestic duties or pecuniary claims may seem imperative; surely, however, when in the day of victory the old relations are restored, the public will know how to reward those of us who, setting all else aside, obeyed the call of King and country.

Let us conclude, as we began, by saying that the need is now so urgent, that the time for consideration cannot be prolonged. By the enrolment of all who are of military age the burden of each will be lightened.—We are, etc.,

Cambridge, May 1st. CLIFFORD ALLBUTT.
Oxford, May 2nd. WILLIAM OSLER.

All readers will recognize the grave importance of these two communications. The two documents should be read together. They are addressed particularly to medical men of military age, but they concern all members of the profession, for in order that a sufficient number of medical men of military age may be obtained it is necessary that others shall loyally help to do their work.

The statement of the Central Medical War Committee, made at the request of the Director-General A.M.S., has reference to the immediate situation. The military authorities require at once from England and Wales a considerable number of medical officers for the R.A.M.C. The need is urgent, as men who keep an open mind and think for themselves must have been quite prepared to learn, though probably we shall hear again about the medical men already in the service who are not being used as economically as possible. Allegations of this kind tend to unsettle men's minds and to give the weak-kneed excuse for hanging back, but the profession has by this time learnt how limited is the value to be put on this sort of criticism. In this particular instance the Central Medical War Committee satisfied itself by a personal interview with the Director-General at the end of last week that the demand now made for more medical officers is fully justified and cannot be postponed.

It is unfortunate that so large a demand should have come just at this moment, because enrolment is not completed. The Central Medical War Committee decided recently that no call on the enrolled should be

made unless and until 75 per cent. of the men of military age had signed the form of application for a commission. That percentage has not yet been enrolled. The demand of the War Office, however, is urgent. The only course the Committee can take in these circumstances is to make an appeal to the medical profession voluntarily to furnish the number required, in spite of the fact that enrolment is still incomplete. In taking this course the Committee is encouraged by the fact that many amongst the enrolled have already expressed their willingness to go so soon as they are told that they are wanted; in fact, but for the enrolment scheme some of them would ere this have sent in an application for a commission direct to the War Office. The Central Medical War Committee now invites these and others to send in their names at once, without waiting till the pledge given by the Committee as to the percentage of possible enrolments has been redeemed.

As things are with the country at this moment, medical men of military age, whether enrolled or unenrolled, are to understand that their services are now required by the army. The time is past when a man whose services can be spared is justified in refraining from taking a commission because in his own opinion he is better employed where he is. The extension of the fronts in various parts of the world and the military operations imminent will strain to the utmost the medical resources of the country, and a dearth of medical officers at this time cannot fail to have an effect in helping to prolong the war.

That the principle of the enrolment scheme cannot be applied fully at this moment is due to the unfortunate circumstance that a certain proportion of the men for whose advantage it was devised have hung back. This hesitation may, in part, have been due to a failure fully to understand the purpose of enrolment. It has been explained on many occasions, and it is stated once more with brevity and cogency in the letter from Sir Clifford Allbutt and Sir William Osler, who have always shown themselves as sympathetic towards private difficulties as jealous for the honour of the profession. They state very clearly the difference they perceive in the position of an enrolled man and of a man taken for service under any system of compulsion that may be introduced. The hints which the Central Medical War Committee has given in this direction on previous occasions have been in some quarters, we are informed, described as threats. They are not threats; they are statements of fact, as anybody who reads the daily newspapers and the reports of Parliament will conclude for himself. There are many differences between the man who voluntarily enrols and the man who waits to be fetched. There are differences which affect the moral of the matter, but there is also this practical difference, that the medical man who takes service under the conditions which have been arranged in relation to enrolment has the advantage over other members of the community that he is only called upon to serve for one year. The stockbroker or lawyer who takes a commission in the army takes it for the duration of the war. So, too, the Territorial medical officer and the officers of the Special Reserve who were called up at the beginning of the war; they must serve for its duration. It is an absurd piece of petulance to read anything of the nature of a threat into the statement that the increasing difficulty in providing medical officers may lead to the abolition of the system of commissions for one year. It is a common-sense statement of a probability which every unprejudiced person can realize for himself.

Is it more consonant with the honour and interests of the profession to take service voluntarily or to wait to be dragged out by Act of Parliament? Is it more pleasant and decorous for a professional man to wait to be summoned before a local tribunal, there to have his duty and private affairs discussed by a body of laymen, or to accept the privilege of having his position fully considered by his peers? Can any medical man assert that the introduction of conscription will diminish, or indeed to any tangible extent affect, the difficulties which will have to be faced by a medical man called upon to enter the army?

We go back to the point that the army must have doctors. It wants a continuous flow into the Royal Army Medical Corps, and it wants an unusually large number at this moment. The relation of the medical profession to the civil population is a national question. It should be decided by a national body. A local tribunal is not competent to decide on the value of an individual medical man in relation to the values in other parts of the country.

It is true that compulsion now looms in the near future; but it is still essential that the medical profession should make the enrolment scheme a success. Let every medical man under 45 remember that the paramount interest of the country is that the war should finish as quickly as possible, and finish victoriously; that the medical service of the army is essential to its efficiency; that the service must have doctors in sufficient numbers; and that no man is really in a position to select himself, that is, to decide whether he should enter the medical service or stay at home. The Central Medical War Committee is the only body in England and Wales, and the Scottish Medical Service Emergency Committee the only body in Scotland, which has knowledge of all the difficulties and the methods of dealing with them. Fairness to all members of the profession as well as to the public requires that a proper selection should be made. We assert that these statements have never been seriously disputed; they are demonstrably true—in fact, axiomatic. The appeal is therefore to every medical man of suitable age who has not yet enrolled to do so. By enrolling he accepts the Central Medical War Committee or the Scottish Medical Service Emergency Committee as arbiter. He can enrol by filling in the form to be obtained from the secretaries of the Committee at 429, Strand, or the convener of the Scottish Committee at the Royal College of Physicians in Edinburgh. He will thus be doing his share to ensure the success of a scheme which, while it will supply the needs of the army and preserve all that is essential for the treatment of the civil community, at the same time provides for the sympathetic consideration of the difficulties of individual medical men, and the maintenance of the dignity, honour, and interests of the profession as a whole.

LONDON SCHOOL OF TROPICAL MEDICINE.

SIR RICHARD HAVELOCK CHARLES, G.C.V.O., Serjeant-Surgeon to the King and President of the Medical Board of the India Office, has, at the request of the Secretary of State for India, accepted an invitation to become dean of the London School of Tropical Medicine in succession to the late Sir Francis Lovell. The institution is to be congratulated on having secured as its head a man whose professional and personal distinction will shed lustre on the office, while his administrative capacity and knowledge of the tropics will be of the greatest service to the school. Sir Havelock Charles has for a considerable time taken a deep interest in its fortunes. His long experience

in India, where he took a large part in the reform of the medical schools at Lahore and Calcutta and gained the confidence of native students in a very unusual degree, makes him peculiarly fitted for the post which he has now been called upon to fill. He may be trusted to co-operate in a spirit of friendly rivalry with Sir Leonard Rogers and his fellow-workers of the Calcutta School, the foundation stone of which was laid by Lord Carmichael on February 14th, 1914. An illustrated account of the institution as it will be when the buildings are completed was published in the BRITISH MEDICAL JOURNAL of March 7th, 1914 (p. 562). That school has a special function of its own to fulfil, and there is ample room for an Indian foundation as well as for Mr. Joseph Chamberlain's creation at the Victoria and Albert Docks. On the outbreak of the war the number of students at the London School dropped from sixty almost to vanishing point, and practically no post-graduate work is being done there. We are glad to learn, however, that the school opened its session on May 1st with ten students. Sir Havelock Charles comes to his new task at an anxious time, but we have the fullest confidence that his tact, energy, and wide experience in educational work will enable him to deal successfully with a difficult situation.

NEW MEDICAL BATHS AT TORQUAY.

A NEW chapter in the history of Torquay as a bathing station was begun on May 1st, when a large medical bathing establishment was opened on Beacon Hill, between the bay and the harbour. The baths are one result of an ambitious scheme of municipal development which has been going forward during recent years at this famous Devonshire resort. The idea of having an up-to-date system of medical baths was first started in 1910, and after a careful study of the bathing establishments at the inland spas, the work of converting the old bathing saloons to this new purpose was begun in July, 1914. Difficulties arising out of the war account for the fact that the work has only just been completed. The new baths consist of thirteen treatment rooms, with twice that number of dressing-rooms, and are divided into ladies' and gentlemen's suites. There has also been installed a large subterranean swimming bath. The decorative style of the whole work, in vitreous mosaic, is in harmony with the hygienic idea, and the outlook is open to the waters of the bay. The treatment given includes local vapour and electric baths, and baths of sea water and of medicated water, such as in the Nauheim, pine, and sulphur treatments. Provision is also made for Aix and Scotch douches, with water softened more than ordinarily; and a bath which it is hoped may become famous as a Torquay speciality is a salt and seaweed bath—or, as it is called on the east coast, an ozone bath—the seaweed at Torquay being prepared for application in a newer and rather better way than has hitherto been the case. On the occasion of the opening of the baths by the mayor (Mr. C. T. Towell), testimony was given by the Chairman of the Baths Committee to the assistance rendered by local medical men, some of whom had formed themselves into an advisory board in connexion with the work. With the completion of the task this advisory board ceases, but two or three medical men, including the President of the Torquay Medical Society and the Secretary of the South-Western Branch of the British Medical Association, have been appointed as a medium of communication between the Baths Committee and the local profession, so that this enlightened municipal enterprise will continue to be stimulated by an enlightened medical opinion. After the official opening, Dr. Fortescue Fox gave an address, congratulating Torquay on a climate favourable to the action of the baths, especially during the colder months of the year. The eastern part of our island, he said, was desirable for those who needed to be stimulated, the western part for those who needed to be rested. The east quickened the pace, the west tranquillized and slowed down. He likened the Tor Bay portion of the Devonshire coast to the Italian Riviera, and expressed the opinion that Torquay as a marine climatic station promised many advantages for the after-treatment of disability arising from wounds. In this, as in general respects, more might be done in the way of associating British health resorts with one another, not in sterile rivalries, but in mutual co-operation. He had been struck by the strong individuality of our health stations. Each had its own characteristics, and in our little island there was room for all of them, especially now and in the immediate future. The co-operation of the local medical profession in this new Torquay venture was promised in the course of brief speeches by Dr. Winter (the deputy mayor) and Dr. Gervis. The company, which numbered a thousand or more, then made a detailed inspection of the bathing suites.

THE ROYAL ACADEMY.

THE one hundred and forty-eighth exhibition of the Royal Academy of Arts in London, now open at Burlington House, may be recognized at once as one of unusual merit. Seen in the turmoil of the Private View, when the floor is even more crowded than the walls, and the eye is continually distracted by meeting the originals of many of the portraits hovering in the immediate neighbourhood of their counterfeit presentments, this year's Academy gives an uncommon impression of strength and varied interests. The number of pictures of academic type and interest—we use the word "academic" in the Pickwickian sense—is not so large as usual. It would seem that the war has broadened the sympathies of both the contributors to the exhibition and the hanging committee alike. As is natural, there is a khaki tone about many of the most arresting pictures on the walls; here there is less of the flamboyancy noticeable in so many of last year's war pictures, and there is evidence of a better realization of the true horror of war. An excellent example of this will be found in Gallery No. VI, where "The Return to the Front," from Victoria Station, is depicted with a vigour and freedom from sentimentality that are rarely exhibited in compositions of this class. Zeppelin raids and aeroplanes in battle receive their due illustration, and the doings of our fleet are recorded in a number of fine canvases. Hospital pictures, too, are naturally to the fore, but surgeons will be horrified to see the pictures, which one must suppose to be accurate in detail, of the over-furnished and crowded rooms full of dust-collecting bric-a-brac that are now being employed as wards for the wounded. A khaki setting is the prominent feature of many of the portraits in the exhibition; portraits, usually the chief feature of the Academy, form this year a less important part of it, for one reason or another. There are, however, portraits of Royalty; there are many portraits of military men, young and old, and not a few of beauties, débutantes, and children. Why is it, one may ask, that children so often have to be painted with large, watery, and gleaming eyes that to the medical man are undoubted exemplars of "Bright's bright eye" and indicate nephritis? Probably the explanation lies in the words Corney Grain used to sing, "Which is very inartistic, but the public like it best." Another feature of Academy exhibitions to which the public is inexorably attached is very fully represented this year; we refer to the problem pictures and morality pictures that hang on the walls in large numbers, awaiting solution or interpretation, and always attracting much interest and many spectators. There is even a medical problem picture in Gallery No. VII; standing in front of this canvas, many a medical man will be inclined to think that the doctor's prohibition here depicted has come a quarter or half a century too late.

WITTENBERG: A GERMAN DENIAL.

REFERENCE was made in the BRITISH MEDICAL JOURNAL of April 22nd to a semi-official denial by the German Government of the charges made against the administration of the Wittenberg prison camp in a report by the Government Committee "on the treatment by the enemy of British prisoners of war." Further denials, evidently inspired, have appeared in the German press. As usual, these are inconsistent. While in one quarter it is said that if in the early days some prisoners lacked clothes, this was due to their love of gambling, in another it is alleged that the "Wittenberg fables" are spread with the object of persuading the English soldiers, "whose courage needs various kinds of stimulants, that death is preferable to capture by the Germans"! Again, while it is asserted that energetic measures were taken as soon as the epidemic broke out, and medicines, wine, and milk were provided in large quantities for the prisoners, the excuse is put forward that at the beginning of the war the doctors did not possess the experience they have since gained. This is doubtless true, but it amounts to an admission that the outbreak was not, at any rate at first, dealt with effectually. The plea contrasts strangely, too, with Dr. Léonetti's story of a German doctor who during the outbreak of typhus at Langensalza congratulated a French medical officer on having been brought to Germany, "where he would learn how to treat patients." It must also be pointed out that what the German papers call "the lying and slanderous report of the state of things at the Wittenberg camp" does not rest entirely on British testimony. In the *Times* of April 27th a French sergeant released in February was quoted as recording his "hellish experience" of Wittenberg. He speaks of it as a camp of misery where he had suffered tortures from hunger which brought on two heart attacks; where the prisoners' parcels were pilfered and their tins of preserved food prised open by German bayonets. He describes it as "the home of brutality, where police dogs were let loose unmuzzled among us in the barracks, where scourge and lash and knout were current change, and where the posts to which we were tied caused many an illness." He calls Wittenberg "a camp of death," where 800 of his comrades perished either from lack of care or from cowardly rifle fire. This exactly confirms the British report. Wittenberg is not the only German camp where sick prisoners were badly treated. Speaking of Cassel, private Archibald Allan, 2nd Battalion, K.O.S.B., says[1] that when he was transferred to an internment camp on the outskirts of the town there were fully 10,000 prisoners there, and typhus was raging. "It became so bad that the German orderlies were not allowed to enter the camp, and all the food for the prisoners was passed through wooden shoots" from the outside. "When the fever abated, the orderlies returned to their usual duties, but the sufferings of the prisoners did not diminish." We have more than once quoted the testimony of Dr. François Léonetti, and we may add that it is fully confirmed by Drs. Deléarde and Halluin, who worked at Langensalza and Niederzwehren during the outbreaks of typhus. Their report is published in the *Revue d'Hygiène* of April 20th. The story of these camps is a record not only of cruelty and cowardice, but of gross professional incompetence. The incapacity to put into practice the prophylactic measures which sanitary science, as it has been developed in more enlightened countries, has shown to be effective is one more striking piece of evidence showing the backwardness of Germany in this respect.

[1] *Glasgow Herald*, January 27th, 1916.

DENTAL RESEARCH AND DENTAL NURSING.

THE National Dental Association of the U.S.A. and others interested in philanthropic work have organized an institute the purpose of which, as more fully set out in the articles of incorporation, is to find and establish means for the complete relief of mankind from the direct and indirect ravages of dental and oral diseases, to encourage research, and to acquire and administer property to carry out these objects. It is incorporated and has its offices in Cleveland, Ohio, and possesses two well-built houses containing twenty-five research rooms and a lecture room. Part of the work is to be carried on locally and part by means of grants in aid to workers in other parts of the U.S.A. A memorandum has been issued setting out a long list of subjects fit for investigation, ranging from systemic diseases resulting from oral infections to the finding of a substitute for platinum in dentistry ("one-third of the platinum used in the world is in the art of dentistry, amounting to about 2,500,000.00 dollars per year, and is lost"). Many of these subjects are already being investigated under the aegis of the institute. It has a limited membership of sixty. Of these, thirty-three are permanent non-dental members, elected from leading research scientists, philanthropists, and business men. Among them are such names as Victor C. Vaughan, Charles H. Mayo, George W. Crile, Frank Billings, and Mr. Thomas Forsyth. Such names are a guarantee of the earnest spirit in which the work is being entered on, and we congratulate the prime movers and organizers of the undertaking on the successful launching of their scheme. It will be no small benefit if by its means dental research in the U.S.A. becomes systematic and co-ordinate. While realization of its objects lies with the future, the known ability of those whose names are published as already at work under the guidance of the institute affords good ground for hope of ultimate triumph. Almost simultaneously with the announcement of the opening of this research institute we have news of the passage of a bill by the New York Legislature providing for the training, registration, and licensing of women to act as dental nurses. They may "graduate" as dental hygienists in one year. Their function is to scale and clean teeth, but they must always work under the supervision of a licensed dentist. Mr. Edward F. Brown, Secretary of the Dental Group of the Advisory Council of the Committee on Child Hygiene, New York City Health Department, explains that the object in view is the prevention of dental caries and oral sepsis, and credits Dr. Alfred C. Fones of Bridgeport with having already successfully experimented in the use of the "dental hygienist." It is intended that the dental nurse shall deal primarily with the teeth of the school population of New York City. The result of her work will be watched with interest. Her introduction may well be epoch-making in the history of public health.

TRAINING IN OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

DR. TODD of Minneapolis has discussed recently, in *Ophthalmology*, the higher education of students desiring to become specialists in eye and ear surgery. He points out the necessity for a thorough course of instruction and training in both the theoretical and practical sides of these subjects. Post-graduate courses are useful to enable the general practitioner to rub up his knowledge of medicine and surgery, but attendance at a course of such lectures in a special subject does not make a man an expert, although in America it has led to the development of what Dr. Edward Jackson has called the "six-weeks specialist." Dr. Todd points out that a beginning has been made in England by the creation of the diploma in ophthalmology by the Universities of Oxford and Liverpool; this can only be regarded as a beginning, because neither is the reward of a thorough methodical training in the subject. Some of the American universities have gone further, and in 1914 the University of Minnesota Medical School established courses for the preparation of specialists, not only in ophthalmology, but in other branches of medicine. An

applicant must have graduated from a high-grade medical school, and must have acted for a year as house-surgeon at a general hospital. The courses cover a period of two or three years, and when completed the student, after he has carried out a piece of research, is granted the degree of D.Sc. in ophthalmology or other subject. Such a course of preparation might be organized in London in connexion with the special hospitals, and the degree of F.R.C.S. might be open to the specialist who has been so trained. It is an anachronism that the most coveted diploma in Britain should be the monopoly of the anatomist and general surgeon.

TRAUMATIC GLAUCOMA.

PROFESSOR GOLDZIEHER, of Budapest, has reported[1] two cases of glaucoma following injuries received in battle. He expresses the opinion that the question of primary glaucoma, consequent upon a concussion injury to the eye, has not received the attention it deserves, and recalls the views of von Graefe and Schmidt-Rimpler, who both denied the possibility of such an occurrence, and of Wagenmann, who allowed its possibility. In one of Goldzieher's cases the man, aged 29, was buried by explosion and was unconscious when dug out; on recovering consciousness both eyes were red and watery, but the left was more affected than the right. For a week after the injury he was also deaf; the right eye soon recovered, but at the end of a week he saw badly with the left. He quickly returned to duty and was transferred to the south-western front, where, in July, he was injured in the hand, and was sent to hospital. The right eye was then quite normal, the left almost blind from glaucoma; it was free from injection; the anterior chamber was deep and the iris normal; the pupil was moderately dilated and practically inactive to light. With the ophthalmoscope subcapsular opacity could be seen in the lens below the horizontal meridian; the capsule was uninjured; there was no subluxation or tremulousness of the lens; the vitreous was clear, and the disc deeply cupped. In the extreme upper periphery of the fundus was seen a bleached area with numerous fine dots of pigment regularly arranged, and some yellowish splashes of irregular contour with unpigmented edges. Goldzieher attributes the fundus change to retinal haemorrhage, and thinks that the lens opacity can be accounted for by the coup and the area of fundus change by the contrecoup. In the other case a Roumanian was injured by shrapnel in the left eye, which was free from injection but stone blind. From a small punctiform corneal opacity there extended backwards through the anterior chamber, which was of normal depth, a fine thread of anterior synechia connecting the corneal opacity with the anterior surface of the iris; the iris was otherwise normal, the lens and vitreous were transparent, and the disc deeply cupped. There can be little hesitation in pronouncing the second case to have been one of glaucoma secondary to the perforating injury with anterior synechia formation. It is well known in this country, and we should have expected also in Hungary, that glaucoma is by no means an infrequent complication of perforating wounds with anterior synechia formation. The fact is one of the strongest arguments in favour of dealing with all such anterior synechiae if possible by operation. This very complication not infrequently ensues in cases in which a broad synechia is present, though it is true glaucoma must be rare in connexion with so fine a tag of synechia as the author relates; in spite of this, we, however, see no reason to alter the view of the case expressed above. It is not so easy to account for the first case, though we are inclined to look upon this also as an example of glaucoma, possibly secondary to some low form of cyclitis following the injury.

[1] *Wien. klin. Woch.*, January 20th, 1916.

REPORTS ON THE CONDITION OF PATIENTS.

THE Central Ethical Committee of the British Medical Association had before it at its meeting on April 7th correspondence which raised the point whether a medical practitioner was justified in making a report upon the condition of a patient to a third party without the patient's knowledge and consent. The Ethical Committee adopted a resolution to the effect that medical practitioners should not furnish any such reports without the knowledge and consent of the patient. We are told that applications for reports are not infrequently made by lawyers to practitioners in attendance upon injured persons in connexion with proceedings under the Workmen's Compensation Act and otherwise, and that when met with a rebuff the lawyers are apt to reply that such reports are furnished in many hundreds of cases during a year. We are not prepared to accept a general statement of this kind as correctly expressing the practice of the profession. The ethical principle involved is simplicity itself. It is this, that the duty of a doctor called to attend upon a patient is to that patient and to nobody else. The only exceptions we know of to this rule are, first, if the patient be of tender age or *non compos mentis*, in which case the report must be made to the parents or guardians; and, secondly, certain specific instances in which the Legislature has thought fit to lay the obligation of giving a certificate upon a member of the profession, as in the case of notification of infectious disease.

THE next session of the General Medical Council will begin on Tuesday, May 23rd, at the Council's new premises, 44, Hallam Street, Portland Place, London, W. The President, Sir Donald MacAlister, K.C.B., will take the chair at 2 p.m.

Nature has received from Professor B. Menschutkin, of the Polytechnic Institute, Petrograd, the gratifying information that Professor I. P. Pavlov, the eminent physiologist, is alive and well. The report of his death, which reached this country last February, was due to a confusion of names. The professor who died was the distinguished surgeon, E. V. Pavlov.

THANKS to the courtesy of Sir G. H. Makins, treasurer, and Sir Wilmot Herringham, secretary, through whom thirty-one volumes have recently been received, the series of the volumes of the *Transactions* of the International Medical Congress in London in 1913 in the Library of the British Medical Association is now almost complete. The only volume now missing is Part I of Section XXII (Radiology), which is out of print. The Librarian will gratefully acknowledge the receipt of a copy of this part sent to him at 429, Strand.

Medical Notes in Parliament.

War.

Compulsory Military Service.—The Prime Minister began his statement to the House of Commons on May 2nd by dwelling on the actual growth which has taken place in the army since the beginning of the war. In August, 1914, the army at home consisted of 6 Regular and 14 Territorial divisions, in addition to the garrisons overseas, which might be roughly estimated at 6 divisions, making 26 in all. The country now had 42 Regular and 28 Territorial divisions, that is to say, 70, or, adding the Naval division, 71. In order to estimate the contribution of the empire as a whole, excluding India for the moment, there must be added 12 divisions from the Dominions, making 83 in all. The total naval and military effort of the empire from the beginning of the war to this time exceeded 5,000,000 men.

The obtaining of this enormous addition had involved a prodigious effort both here and throughout the empire. There were two limiting conditions in the matter of recruiting which applied to us, and hardly, if at all, to any of the other belligerent countries. The first was the maintenance of sea power and sea supremacy both by means of the navy and the mercantile marine, and, next, the financing of the Allies. Investigations made in July showed that to maintain a 70 division army a weekly influx of 25,000 to 30,000 men must be obtained. The provision of additional men, both those included in the bill introduced last week and the 200,000 still unattested married men, in the later part of the year, was of vital importance to the maintenance in due strength of the army in the field in view of the contingencies of the summer and autumn campaign. The Government's conclusion was that while the number of men required could not be obtained in due time under the existing machinery, the number needed was actually available, that was to say, could be spared from industry without incapacitating us from the discharge of our other responsibilities, which were quite as essential to the successful prosecution of the war as the maintenance of a fixed number of men at the front. Compulsion was a pure question of practical expediency, but if it was to be applied successfully it must be with something in the nature of general consent. In the bill to be introduced on May 3rd it was proposed to apply general and immediate compulsion, but it was not believed that a larger number of men would be got or in a shorter time; but general and immediate compulsion would have the immense advantage of getting rid of the piecemeal treatment to which so much objection had been taken in all quarters of the House, and of the sense of, at any rate temporary, injustice and inequality which that mode of treatment was apt to engender. Speeches made on April 27th from the Labour benches encouraged the belief that there was a general desire to settle the whole matter, with all the controversy and heated feeling which had been introduced, once and for all, and to get it finally out of the way at the earliest moment. Sir Edward Carson, who followed, took up Mr. Asquith's special reference to the Labour party. No distinction, he said, ought to be drawn between classes. Every class had given of its best to the war, and while feeling full sympathy with anybody who had to give up his house and home to fight for his country, he believed that the classes which would suffer most were the professional classes, many of whom had sent him bitter tales of what had happened to their business and to their families, and of the bringing up of their children in the sphere of life in which they were born. But there was no difference in classes: it was equally hard upon everybody. The ensuing discussion lasted about three hours, but did not elicit any points of novelty. The Prime Minister, in introducing the bill on May 3rd, said that the first clause subjected all males between the ages of 18 and 41, married or single, to compulsory enlistment in the army, every male coming within the operation of the bill as he reached the age of 18. It would come into effect thirty days after it was passed, or thirty days after a lad attained the age of 18 subsequently to the passing of the bill, but he could voluntarily enlist during this period of grace. These provisions were subject to the exceptions contained in the first schedule of the Military Service Act. The second and third clauses provided for the extension during the period of the war of the services of men now serving, and for the recall to the colours of time-expired men, whether married or single, if at the time of the passing of the bill they were under 41 years of age. The bill also empowered the Army Council to review the medical certificates of those rejected on medical grounds since August 14th, 1915. The reason for this, Mr. Asquith said, was that the standard of medical fitness had now been extended, and men not fitted for service abroad were being taken for less arduous duties. It was desirable that there should be an opportunity to review them, and he believed a great many of the men would be glad to be reviewed. The fifth clause dealt with the exemption for two months given under the Military Service Act to a man leaving industries of national importance with the intention of joining others of like character. The bill would also provide for the formation of a special reserve to which men in the army or Territorial Forces might be transferred, the intention being that men in this reserve might be or would be employed to a large extent in civil life, but would be immediately available for military service in case of military necessity. The bill also authorized the transfer of Territorials into other corps of Territorials or regular battalions. After a short discussion, Mr. Long replied, and the motion to introduce the bill was carried.

Prisoners' Camps, Germany.—In reply to Mr. Malcolm, on May 2nd, Sir Edward Grey said that it appeared from notes received from the United States Ambassador at Berlin in April and May, 1915, that typhus was present at Zossen, Altdamm, Schneidemuhl, Gardelegen, Wittenberg, Zerbst, Sagan, Cassel, Erfurt, Langensalza, Ohrdruf, Chemnitz, Altergrabow, and Salzwedel. Unofficial reports had reached His Majesty's Government that, in addition to Wittenberg, Altengrabow and Schneidemuhl were abandoned by the Germans. As regarded Gardelegen, it appeared that, except for one German doctor who died at his post and another who acted in a most praiseworthy manner, the camp was deserted by the Germans. The fact that typhus was present at a camp prevented officials of the United States Embassy at Berlin from furnishing officials' reports based on personal inspection. All the reports received from the United States Embassy down to March 31st would be included in a forthcoming White Paper.

Invalid Prisoners and Swiss Resorts.—Further questions were asked on this subject in the House of Commons on May 2nd, but as the Press Bureau issued a communication on the evening of the same day, it will be more convenient to reproduce it.

The Secretary of State for Foreign Affairs learns from the United States Ambassador that the German Government have accepted the proposal of His Majesty's Government for the transfer to Switzerland of British and German wounded and invalid combatant prisoners of war. The precedent formed by the arrangement between France and Germany will be followed as closely as possible.

The Swiss Government have been requested by telegraph to send the necessary number of doctors to examine the German prisoners in this country. A party of Swiss doctors is already in Germany for the purpose of examining the French prisoners, and advantage will no doubt be taken of their presence to examine the British prisoners.

Officers' Ration Allowance.—In reply to Colonel Yate, on April 27th, the Financial Secretary to the War Office said that the ration allowance to officers of the Territorial Force, applicable in cases in which officers were able to draw rations in kind, but preferred for their own convenience to draw the cost in cash, was 1s. 3d., which was the actual cost of the present ration.

Reduction of Notification Fees.—The Lords' amendments to the Local Government (Emergency Provisions) Bill were considered by the House of Commons on May 2nd, and a drafting amendment in the clause reducing the fee for notification from 2s. 6d. to 1s. was agreed to.

Motor Car Duties.—The Chancellor of the Exchequer said, on April 27th, that it was not proposed to interfere with the existing exemptions in respect of motor car duties. Trade cars, fire-engines, motor cars used by a local authority for fire brigade purposes, ambulances, and cars brought into the United Kingdom by a person making only a temporary stay were totally exempt. Motor vehicles kept by a duly qualified medical practitioner for the purposes of his profession were chargeable with one half of the duty. The question whether it would be possible to extend exemption to cars used exclusively for public purposes was under consideration. In a written reply to Mr. Byrne, who asked a question as to the injustice of the proposed new taxes to Irish motor users whose cars were, with few exceptions, either of old pattern or of American makes, Mr. McKenna said that the whole question of the proposed increase in the motor car licence duty was receiving careful attention, but he was not prepared to adopt the suggestion that the value of cars should be the basis of the tax.

The report of the Committee of Visitors for the year 1915, presented to the annual meeting of the Royal Institution on May 1st, testified to continued prosperity and efficient management. Sixty-two lectures and nineteen evening discourses were delivered during the year, and 803 volumes, including bound volumes of periodicals, were added to the library.

THE WAR.

BRITISH RED CROSS CONVOYS AT VERDUN.

(From a Correspondent in Northern France.)

THE nature of the assistance that the British Red Cross Society has been affording in the Verdun fight can be described in half a dozen words—it is fighting line evacuation work. But the relations between the society and the French authorities require rather more explanation. They commenced, not at Verdun, but quite early in the war, varied in their character for a good many months, and crystallized to some extent about the time of the extensive operations in Champagne, and recently assumed a definite and probably final form, and this is practically as follows:

(1) The society undertakes to supply, and the French authorities agree to accept, the assistance of a certain number of convoy sections. (2) As soon as any such section reports itself for duty it becomes for the time being an intrinsic part of the French army, the cars being regarded as part of the French mechanical transport equipment and the personnel as French soldiers. (3) As such the drivers and section leaders are billeted and rationed, receive the ordinary pay of French troops engaged in the same work, and belong to the Service de Santé command.

This does not mean that when the society has delivered at a given spot a certain number of ambulances and a certain number of trained men it ceases to have any connexion with the matter. Its ownership of the cars is not altered by the fact that they are under the absolute control of the French authorities, and its responsibilities towards the workers continue, even though these rank for disciplinary and all other purposes as French soldiers.

In other words, the cars, or what is left of them, return into its possession when no longer required by the French, and meantime it is responsible for the maintenance of a personnel to work them, and for the salaries that it has previously agreed to pay the men who constitute it.

The arrangement sounds curious, perhaps, but really there are plenty analogies for it in civil life. Something of the kind was necessary, because in such a vast business as the conduct of a war it is inconvenient to depend upon labour which is not under absolute control.

In the early stages of the war the French authorities accepted the assistance of many private individuals who were in a position to assist in the removal of the wounded from the battle line to the hospital areas. The disadvantage of this kind of assistance soon became obvious, and little by little the French began to exclude volunteer ambulance workers from the war zone, unless they agreed to cease to operate as independent workers, and to become units in a definite organization.

They also applied the same principle in dealing with members of the British Red Cross Society. Many individuals more or less closely connected with the society began to do ambulance work for the French in the autumn of 1914, a considerable number of them being citizens of the United States of America, who brought over their own cars. Eventually they were organized by the British Red Cross Society into two small ambulance units, and both of them did a great deal of useful work during the first half of 1915. But in the summer of that year the British Red Cross Society allowed one of them to break up; many of its cars were no longer roadworthy, and the officer who had been in charge of it had been offered other employment. The other convoy, however, the society decided should still be maintained, but that after it had been refurbished it should be handed over entirely to the French.

In the early autumn of last year, when the Artois-Champagne operations were in progress, this unit found itself overworked and the officer in charge of it asked the British Red Cross Society for the unofficial loan of another dozen ambulances. These were supplied forthwith by the British Commissioner in France, and the augmented unit did such valuable work that the question was raised whether the loan should not become permanent, and other units be allotted to the French on the same lines.

At first the answer seemed likely to be in the negative for the central authorities of the society in London were not disposed to approve the scheme on account of the expense involved. Fortunately, however, just at this moment a cheque for a very large sum was placed at the disposal of the Commissioner in France by a former ambulance worker in France, who on his return home had devoted himself to collecting subscriptions for ambulances. It was then at once arranged to put the idea into operation forthwith, and eventually to supply the French with three sections or ambulance units in all.

The first of these sections was ready just before the battle of Verdun began, and two other sections have since been sent down. There are therefore now some sixty-six British Red Cross cars at disposal in the Verdun area. They work in three main divisions, each of which is in effect a complete unit, since each has its own repair lorry, a travelling kitchen, and a touring car for the use of the section leader, who is responsible for the work and discipline of his section and any subsections that it may form. In addition there is an officer who exercises general supervision over the whole convoy, and ranks as the local representative of the British Red Cross Society.

Judging from the reports that have filtered through, the conditions of life in which this Verdun convoy is doing its work are rougher than those to which motor ambulance convoys are subjected on the Flanders front, and the work itself in some respects more trying. Apart from going on night after night, the distances that some sections and subsections have to travel before they can unload seem to be very great, and there is a paucity of roads fit for heavy motor traffic. Some subsections seem also to be doing work which on the British side is not allotted to convoys but to field ambulances—that is to say, they are collecting from first posts within easy reach of machine gun and rifle fire.

All, too, seem to have to pass frequently along roads lying between the heavy artillery positions on both sides. Shells can consequently be heard whistling overhead, and though they may constitute no particular danger, the possibility of some of them falling short always exists. The noise, too, is great, for the line is more or less curved, and consequently guns seem to be banging from every direction.

It is clear, therefore, that the men attached to the convoy are justifying their existence to the full, and that the British Red Cross Society is well earning any credit which it may receive in respect of this matter.

BRIGHTON HOSPITAL FOR PATIENTS WHO HAVE LOST LIMBS.

THE Pavilion Military Hospital, Brighton, until lately used for the treatment of sick and wounded Indian troops, has been thoroughly renovated, and is now open for the reception of English wounded. A special feature of this hospital is that two divisions, comprising over 500 beds, have been entirely renewed for the treatment of patients who have lost one or more limbs. It has been found that many patients who have undergone amputation have had a long and tedious convalescence, which might in many cases have been considerably shortened if the best means of treatment of their stumps had been available; they would include those cases which, owing to necrosis of bone with discharging sinuses, have been sent from hospitals to convalescent homes to make room for other wounded.

The conditions for which it is especially intended that patients shall be admitted to the Brighton hospital are (1) persistent sinuses after amputation; (2) bulbous nerve ends in stumps; (3) adhesions limiting the free movements of a joint; (4) flexion of joints by contraction of scar tissue; (5) cases requiring re-amputation, as, for example, for conical stumps, and after flush amputations which have not properly healed. Shortly, any condition of stump which does not allow the proper fitting of an artificial limb will be considered suitable for admission. When a patient has been successfully treated for any of these disorders, and his stump is quite ready for fitting an artificial limb, he will be transferred to Queen Mary's Auxiliary Hospital, Roehampton, to have this artificial limb supplied.

It is hoped that workshops may be opened at the hospital

at which men will be taught trades during their stay. These trades will, of course, vary with the condition of the men, and care will be taken that the particular trade selected shall be suitable to the particular deformity.

The hospital is under the command of Colonel Neil Campbell, C.B., C.I.E., who was in command of the hospital for wounded Indian soldiers in the same building. The officers in charge of the two divisions are Lieutenant-Colonel Davis, I.M.S., and Major Brailey, R.A.M.C. The wards are of good size, airy, and well arranged, the largest containing about 130 beds. There are two operating theatres, an *x*-ray room, a disinfector, cook houses, a canteen, and all that is necessary to make a military hospital complete in all details.

TRAINING SCHOOLS FOR MAIMED SOLDIERS.

One of the most urgent problems created by the war is the provision of new means of livelihood for soldiers incapacitated by wounds from carrying on their previous occupations. For this purpose arrangements have been made in most of the belligerent countries for the establishment of schools in which men crippled, blinded, or otherwise disabled can be trained for such work as their condition allows them to do. In this country the Incorporated Soldiers' and Sailors' Help Society, besides supplying financial help until the formalities required for the granting of pensions are complete, instructs men in useful trades, and when they have acquired sufficient skill employs them in its own workshops. Men with one arm are taught painting and other trades in which two hands are not needed, or they are engaged in feeding wood or paper to hand machinery. A year ago the society had workshops in London, Edinburgh, Dublin, and Brookwood (Surrey), and was taking steps for a large extension of its operations. Mr. C. Arthur Pearson's work at St. Dunstan's, Regent's Park, in the treatment and training of blinded soldiers and sailors is known to every one. In the British Medical Journal of November 20th, 1915, it was announced that at the suggestion of the Scottish Veterans' Garden City Association, the president of which is Lord Wemyss, a scheme had been worked out for the establishment in the various areas of Scotland of villages where the maimed soldier might find a home for his family and be trained in some useful work by which he might supplement his pension. Ground has been secured at Longniddry, not far from Edinburgh, and an interesting account of the work with plans and other illustrations has been issued by the association. In Ireland a hospital, designed for 4,000 wounded Irish soldiers, has been established in Tipperary; those unable to resume their occupations are given instruction in wood and metal working, typewriting, and telegraphy. In France the Ministries of War and of the Interior have been studying the whole question. But official action is slow, and in the meantime a movement started by Maurice Barrès, the distinguished writer; M. Edouard Herriot, Senator for the Rhône department and Mayor of Lyons, and Dr. M. Carle, has led to the establishment of schools for maimed soldiers at Lyons, Saint-Maurice (near Paris), Marseilles, Bourges, Montpellier, Saint-Etienne, Bordeaux, Toulouse, Pau, Orleans, Nancy, Rouen, Havre, Clermont-Ferrand, Tourvielle, and several other towns. Dr. Carle, who is physician in chief to the schools, in his book *Les Ecoles professionelles des blessés*, which was reviewed in the Journal of December 11th, 1915 (p. 862), gives the fullest account we have seen of the objects aimed at, and the methods adopted for their attainment. The training is either commercial or industrial. In the former class maimed men who have completely recovered, and who are free from tuberculosis, are taught what might be called clerking in all its branches; the course comprises French, writing, shorthand, book-keeping, commercial geography, with English and Russian as optional subjects. The industrial classes comprise bookbinding, shoe-making, tailoring, carpentering and toy making, iron and wood work, basket and broom making, modelling in clay, harness making and general saddlery. Workshops for the manufacture of orthopaedic apparatus are being organized. The school at Tourvielle has a section of horticulture, where all the sheds and conservatories have been built by the pupils. The men receive, in addition to their pension of Fr.1.70 a day from the State, an allowance of Fr.1.25 a day from the school, together with the proceeds of their labour, whether done for the institution or in fulfilment of orders from outside. In Germany an institution for the supply of artificial limbs has been established at Charlottenburg; there the sort of work which the wounded men are fit to do is decided upon, and they are trained as workers in metal and wood, transport labourers, textile workers and agriculturists, and taught to work with the hoe or broom, and to drive carts. The German National Education Society has raised a fund of £25,000 to assist the blind until the State gives them suitable employment. They are trained as telephone operators, typists, and masseurs; those who are musically inclined are given instruction in music. The Hamburg Society for the Blind assists blinded soldiers till they can return home and take up the work of learning some trade. The Austrian Red Cross has established schools for crippled men; in the early part of last year four institutions for the teaching of trades were at work in Vienna and one in Prague. In Italy committees have been formed at Milan, Bologna, Florence, Turin, Lucca, Leghorn and elsewhere for the training of mutilated soldiers in new occupations. In an address on the re-education of the wounded, delivered in Rome not long ago, Professor Foà said that after four months of war Italy had 1,160 maimed men; statistics extending to November 20th, 1915, brought the number up to 4,000. To these must be added many cases of men disabled by frostbite. In New York a Permanent Blinded Relief Fund for Soldiers and Sailors—British, French, and Belgian—has recently been organized. It is estimated that six months' training will enable blinded men to earn their living. The idea of training schools for wounded soldiers is not new, though it has never before been acted upon on so large a scale as the exigencies of the present war have made necessary. It is not only a matter of livelihood for the men, but of peace of mind and freedom from anxiety and depression. The whole question is ably dealt with by Dr. Borne in a book, entitled, *La rééducation des blessés et des mutilés de la guerre* (Paris: Renouard, 1915), which may be studied with profit by all who wish to take an active part in soothing the lot of our maimed heroes.

THE ST. JOHN HOSPITAL, SOUTHPORT.

In the British Medical Journal of April 22nd (p. 608) reference was made to the work of the St. John Hospital, Southport, which is the largest V.A.D. establishment in England. The medical officer in charge, Mr. W. C. Bentall, F.R.C.S., has sent us an interesting account of the hospital; we regret that, owing to want of space, we can only publish a brief summary of his article. In the early days of the war one of the ordinary V.A.D. hospitals was started with thirty beds. The institution received such enthusiastic support from the citizens of Southport under the active leadership of the mayor, Alderman J. E. Willett, that it was decided to provide for a large expansion of the original scheme. The loan of two mansions, each with extensive grounds attached, was obtained, and on these grounds a hospital was erected on the pattern of the 1st Eastern General Hospital at Cambridge. Southport was then able to offer to the War Office a hospital of 500 beds with staff complete. It is within the area of the Western Command, which has its head quarters at Chester. Though graded as a "Primary" hospital, in order to save extra official work, it is linked to the 1st Western General Hospital, Fazakerley, Liverpool. It consists of eight blocks, connected by covered ways. Each block consists of a ward with sixty beds opening on the common corridor at one end, where are a nurses' room and the ward kitchen. Across the corridor are three rooms connected with a sanitary block containing a lavatory and a bathroom for the men, and a nurses' sanitary room for the storage of bed-pans, with cleansing appliances. The wards are open to within two feet of the floor on the south-west side, and, as a protection against wind and rain, there are alternate windows and shutters on lift-off hinges; to ensure a sufficient supply of fresh air when these have to be closed, a 9-in. opening under the eaves runs along both sides of the ward, while in the gable at each end there is another opening for ventilation. Besides the kitchen and food storage department, which is quite separate from the other buildings, the hospital contains a

dispensary, nurses' dining-room, cloakroom accommodation, linen stores and sewing-rooms, together with matron's and kitchen superintendent's offices. In the reception block there is a large, well-heated waiting-room which opens into an undressing-room, off which is a small store for dirty and infected clothes. The men on arrival are stripped and bathed; then they go into the dressing-room where hospital clothes are supplied, and from this they go to the wards. After thorough stoving kits are placed in a pack store. In each branch of the hospital there is a spacious and fully equipped operating theatre. Trains bring wounded direct from Southampton. In addition to the men from abroad there is a steady stream of cases—hernia, appendicitis, varicocele, etc.—from the troops billeted in the town. One of the hospitals has been practically rearranged as a hospital for dysentery and enteric fever, with an extensive department for bacteriological examinations under the supervision of the honorary pathologist, Dr. E. Cronin Lowe. In the *x*-ray department, under the supervision of Mr. Thurstan Holland and Dr. Oram of Liverpool, there is a full plant for electrical treatment, massage, diathermy, etc. One-third of the practitioners in Southport have joined the forces, and the medical staff of the hospital consists of twenty-two temporary divisional surgeons (who are not commissioned or paid) appointed by the Order of St. John from the practitioners remaining. These surgeons constitute a medical board which meets monthly. The management of the hospital is in the hands of a council representative of all interests concerned, with a chairman under whose cognizance all matters of expenditure and administration are brought. In the administration three Voluntary Aid Brigade Divisions of the St. John Ambulance Association, one of men and two of women, work together.

There is a matron at each hospital, with a staff of thirty-four trained nurses, who take charge of the wards, and are assisted by a staff of V.A.D.'s. The total cost of the buildings with full equipment amounted to £12,000, which was raised by public subscription. For maintenance the War Office makes a grant per day for every wounded man, and the people of the town are liberal in their support of the hospital, of which they are very proud. A permanent record of the work of the St. John Hospital, Southport, has been issued by the medical officer in charge, in the shape of a book, containing, in addition to a short history of its development, descriptions of its various departments and other appropriate literary matter. The work is illustrated by a number of admirable photographs. The whole forms a pretty souvenir of an effort for the relief of our sick and wounded warriors which is in the highest degree creditable to the people of Southport and to the medical profession of the town.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

Died on Service.

THE battleship H.M.S. *Russell* struck a mine in the Mediterranean on April 27th, and sank, with considerable loss of life. Of the officers, twenty-seven were killed or died of their injuries. Among the latter were two medical officers—Fleet Surgeon W. R. Center and Surgeon P. D. Pickles, R.N.V.R., who died in hospital at Malta on April 28th.

Fleet Surgeon William Rudolf Center was the son of the late Brigade Surgeon W. Center, I.M.S. He was educated at University College, London, and at the Universities of Aberdeen, Edinburgh, Strassburg, and Berlin. He took the M.B. and C.M. with honours at Edinburgh in 1893, and the M.R.C.S. and L.R.C.P.Lond. in 1896. Entering the navy in 1896, he became Fleet Surgeon on May 13th, 1912. He qualified as an interpreter in German in 1911.

Surgeon Philip Dobson Pickles, Royal Naval Volunteer Reserve, who died in the Malta Naval Hospital from the effects of the fumes following the mining of H.M.S. *Russell*, was the son of Mr. J. J. Pickles, surgeon, of Leeds, and was 33 years of age. He was educated at Leeds Grammar School and Leeds University, and took the diploma of L.M.S.S.A. in 1908, subsequently holding the posts of resident medical officer, Leeds Public Dispensary, house-physician of Leeds General Infirmary, and clinical assistant at Armley Hospital, Leeds Tuberculosis Association, after which he went into practice at Earby, near Skipton in Craven. He joined the R.N.V.R. on March 16th, 1914, and on the outbreak of the war was appointed to H.M.S. *Russell*.

ARMY.

Died of Wounds.

Lance-Corporal Robert Gordon Caldwell Stewart, M.D., of the 15th Royal Highlanders, C.E.F., died on March 29th, at the Toronto General Hospital, from the effects of a wound received at the battle of St. Julien in April, 1915. Dr. Stewart, who was a graduate from the medical college of Dalhousie University, was in practice at Kingston, Ontario, when the war broke out, and held the military rank of sergeant-major in the 48th Regiment of Toronto. He at once gave up both professional and military rank and enlisted as a private in the 15th Royal Highlanders, and was soon promoted to be lance-corporal. At the battle of St. Julien, as he was attending to a wounded comrade, a rifle bullet penetrated the back of his head, emerging at the corner of his left eye. For some weeks he was deaf, dumb, and blind, but gradually the effects of shock disappeared, and he recovered speech and hearing; and finally the sight of his left eye. He returned to Canada, and was operated upon in the hope that the sight of the other eye might be restored, his only desire being to return to the front. Unfortunately his death occurred two days later.

Died on Service.

Major Paul A. Gillespie, M.D., of the South African Expeditionary Force, German West Africa, died of bubonic plague on March 24th at Winburg, South Africa. Major Gillespie, who was in his forty-ninth year, was born at Cannington, Ontario, and was educated at the Jarvis Collegiate Institute, Toronto. He entered the University of Toronto and received his medical degree in 1890. He practised for six years at Penetang, Ontario, and then went to South Africa and commenced to practise at Winburg. When war broke out he became a medical officer in the force commanded by General Botha, and again offered his services for the German East African campaign under General Smuts with the rank of major. On one occasion Major Gillespie was taken prisoner and condemned to be shot as a British spy; fortunately, however, the British forces captured the town in which he was prisoner before the sentence was carried out.

Captain Edward Wilkinson Deane, whose death was announced in the casualty list published on May 1st, was born in 1872, joined the Australian Army Medical Corps last year, attaining the rank of captain in May, 1915, and came over to Europe with the first reinforcements from Australia.

Captain Edward Bush Hartnell, R.A.M.C.(T.F.), was announced as having died on service, in the casualty list of May 2nd. He was educated at Bristol, Dublin, and Guy's Hospital, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1892. After filling the posts of junior house-surgeon of Chesterfied Hospital and resident medical officer of Dover Hospital, he went into practice at Bridgwater, in Somerset. He joined the 14th London Mounted Brigade Field Ambulance as lieutenant on September 22nd, 1914.

The casualty list published on April 28th includes the name of Captain R. R. J. Holmes, R.A.M.C.(T.F.), as having died recently on service. He died of fever, contracted on service, in the military hospital, Malta. He was the only child of the late Captain Robert Holmes of Cloncagh, Woodlawn, co. Galway. He joined the 1st (Maidstone) Home Counties Field Ambulance as lieutenant on August 22nd, 1914, and became captain on April 1st, 1915.

The death of Lieutenant Guy Verney Fletcher, R.A.M.C., was also announced in the casualty list of May 1st. He was educated at Melbourne University, and took the Scottish triple qualification in 1899, also the M.R.C.P. Edin. in 1901. He subsequently served as second resident physician of Monsall Hospital, junior resident surgeon at the Royal Eye Hospital, Manchester, and assistant medical of Brownlow Hill Infirmary, Liverpool. He took a temporary commission in the army in May, 1915.

Lieutenant A. L. Thornley, R.A.M.C., who died after a protracted illness, was the son of Dr. and Mrs. Thornley of Bolton. He received his early education at the Bolton High School for Boys, and Epworth College, Rhyl. He

studied medicine in Edinburgh University, where he graduated M.B., Ch.B.Edin. in 1907. After this he went to Berlin to study ear, nose, and throat work, and from there was appointed house-surgeon to the Birmingham Ear, Nose, and Throat Hospital. He afterwards went to the King Edward VII Hospital, Cardiff, and acted as house-surgeon to the ear, nose, and throat department for two years, and for six months as house-surgeon in the surgical wards. He commenced practice in Cardiff as an ear, nose, and throat specialist, and was appointed by the corporation to attend ear, nose, and throat cases notified for treatment by the school medical officer. He was secretary of the Cardiff Division of the British Medical Association, which post he had to relinquish on accepting a commission in the R.A.M.C. He had been instrumental in getting a large number of medical men to accept commissions in the army.

Accidentally Killed.

Captain Reginald Kinloch MacGregor, R.A.M.C., was notified as accidentally killed, in the casualty list published on May 2nd. He was educated at St. Bart.'s, and took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1911. Entering the R.A.M.C. on August 7th, 1914, as a temporary lieutenant, he was promoted to captain on completion of one year's service.

Wounded.

Major C. A. J. A. Balck, R.A.M.C. (Dublin).

Major Walter Bapty, M.D., 2nd Canadian Mounted Rifles.

Captain W. McK. H. McCullagh, R.A.M.C., Special Reserve (Dublin).

Lieutenant C. Heald, R.A.M.C., temporary (aeroplane accident).

Lieutenant T. D. Miller, R.A.M.C., temporary.

Missing.

Lieutenant and Quartermaster E. H. Atkins, R.A.M.C. (Dublin).

Captain J. H. Beilby, R.A.M.C.(T.F.), Worcester Yeomanry.

DEATHS AMONG SONS OF MEDICAL MEN.

Johnston, Alec Leith, Lieutenant King's Shropshire Light Infantry, son of Dr. George Johnston, of 23, Seymour Street, London, W., killed in action on April 22nd. He was educated at St. Paul's School and at Exeter College, Oxford, holding scholarships at both; and was the writer of the series of articles "At the Front" and "At the back of the Front" in *Punch*. He got a commission as second lieutenant in February, 1915, and became lieutenant in August.

Marsh, T. E. L., Acting Lieutenant Royal Marines, second son of Fleet Surgeon Marsh, R.N. (retired), of Liss, Hants, lost in H.M.S. *Russell* on April 27th, aged 19. He was educated at Malvern College, passed into the Royal Marines just before the war, and joined the *Russell* in April, 1915.

Webb, George Tudor, Second Lieutenant Royal Fusiliers, youngest son of the late Dr. W. H. Webb, of Kingsbridge, killed in action on April 21st, aged 26. He got his commission last July.

MEDICAL STUDENTS.

Binning, William B., Machine Gun Corps, died of wounds, aged 19. He was educated at Failford School, Cowdenbeath, and at Beith Higher Grade School, and was studying medicine at Edinburgh before the war. He got a commission as second lieutenant in the 11th (Service) Battalion of the Cameronians (Scottish Rifles) on December 14th, 1914, and went to the front in October, 1915.

Edwards, A. J. A., Second Lieutenant Royal Scots, attached Loyal North Lancashire Regiment, died of wounds, was a native of Durban, South Africa, and a medical student at Edinburgh. He joined the 11th Service Battalion, Royal Scots, as second lieutenant on February 4th, 1915.

Tresidder, Charles Tolmie, Captain Gloucester Regiment, who was mortally wounded on the night of April 17th–18th, was the youngest son of Captain T. J. Tresidder, C.M.G., late R.E. After being educated at Uppingham and Dulwich College he studied for the medical profession at St. Bartholomew's Hospital, and would have taken his final examination before the war but for the accident of breaking his leg when playing football. He served for three months as a dresser with the Duchess of Westminster's War Hospital. He received a commission in the Lancashire Fusiliers on January 9th, 1915. He was promoted lieutenant on May 4th, and, having taken a first class instructor's certificate with distinction in machine gun work, was shortly afterwards gazetted captain. He subsequently transferred to the Gloucester Regiment, and was given the post of brigade machine-gun officer.

HONOURS.

A SUPPLEMENT to the *London Gazette* of May 2nd, issued on May 2nd, announced the following promotions and appointments to members of the medical profession for distinguished service in the field:

C.B.

Temporary Colonels:
C. A. Ballance, M.V.O.
F. D. Bird, M.D., F.R.C.S.
Sir Victor A. H. Horsley, F.R.S.
William Hunter, M.D., F.R.C.P.
V. Warren Low, M.D., F.R.C.S.
A. W. Mayo Robson, C.V.O.
C. Snodgrass Ryan, M.B. (Colonel Australian A.M.C.).
J. Purves Stewart, M.D., F.R.C.P.
Charters J. Symonds, M.D., F.R.C.S.
William Thorburn, M.D., F.R.C.S.

K.C.M.G.

Surgeon-General William Babtie, V.C., C.B., C.M.G.

C.M.G.

Temporary Colonels:
Archibald E. Garrod, M.D., F.R.S.
F. M. Sandwith, M.D., F.R.C.P.
A. H. Tubby, M.B., F.R.C.S.
W. H. Willcox, M.D., F.R.C.P.

Lieutenant-Colonels:
F. Etherington, C.A.M.C.
S. H. McKee, C.A.M.C.

Temporary Lieutenant-Colonel C. H. Lindsay, M.D., R.A.M.C.(T.F.)
Major E. G. Davis, C.A.M.C.

D.S.O.

Lieutenant-Colonel E. V. Gostling, R.A.M.C.(T.F).
Major J. G. Bell, M.B., R.A.M.C.

Military Cross.

Temporary Captain W. N. Rishworth, M.B., R.A.M.C.

NOTES.

CANADIAN HOSPITALS.

IT is announced that the Canadian General Hospital, No. 7 (Queen's University Military Hospital), which is under the command of Lieutenant-Colonel Etherington, C.A.M.C., has left Cairo for England, where it will be reorganized. It is probable that it will then go to France. No. 6 General Hospital, the gift of Laval University, Montreal, recently arrived in England. This unit is under the command of Lieutenant-Colonel George Beauchamp, C.A.M.C. No. 5 Canadian General Hospital, under the command of Lieutenant-Colonel E. C. Hart, C.A.M.C., of Victoria, was recruited in the province of British Columbia, and is now stationed at Salonica.

CASUALTIES AMONG GERMAN DOCTORS.

The *Muenchener medizinische Wochenschrift* (February 29th, 1916) states that a survey of the losses among German army doctors, gleaned from the casualty lists Nos. 1 to 450, shows the total loss in the army and navy amounted to 1,164. Among these there were 264 killed, 130 died of illness, and 1 died of gas poisoning. Thus the total number of deaths was 395. Further, there were 148 severely wounded, 411 slightly wounded, 133 prisoners, 76 missing, and 1 ill.

THE GERMAN ARMY MEDICAL SERVICE.

At a session of the Prussian Lower House it was stated[1] that more than 14,500 medical men were serving in the army, and that the majority of them belonged to the reserve, the "Landwehr," or to the civilian medical profession subject to military duties. The total number of cases of cholera in the army had not exceeded 300, and in Prussia only 41 cases occurred among the civilian population. In the autumn of 1914 typhoid fever had been fairly prevalent on the western front, but early in 1916 it was practically stamped out. This change was attributed to prophylactic inoculation; so extensively had this measure been adopted, that a total quantity of 26 c.b.m. of vaccine had been used. The amount of cholera vaccine used amounted to 29 c.b.m.

[1] *Muench. med. Woch.*, March 7th, 1916.

THE *Muenchener medizinische Wochenschrift* of November 23rd, 1915, gives a list of forty-one inaugural dissertations presented at the University of Kiel during six months of the past year. No fewer than 28, or 70 per cent., dealt with neurological and psychiatric subjects.

Ireland.

We have received no news from our Irish correspondents this week. It is to be gathered from the graphic letters of Mr. John E. Healy, editor of the *Irish Times*, that the house of the College of Surgeons of Ireland in St. Stephen's Green was made to serve as the chief ambulance dépôt or hospital of the insurgents. A number of wounded were also taken to the Royal City of Dublin Hospital in Baggot Street, which runs into St. Stephen's Green. Mr. Healy states that the first serious street fighting took place on Tuesday, April 25th, at the corner of Pembroke and Lansdowne Roads, where the rebels had seized a doctor's house, from which the troops coming from Kingstown were fired on. When the house was captured in the evening the bodies of nineteen Sinn Feiners were found within. On the same day the insurgents seized an ammunition shop, from which they had Trinity College under close and direct fire. The College was occupied by soldiers, and on Wednesday, April 26th, a field gun was brought to the roof of the College and the ammunition shop blown to pieces. In spite of all this, a term examination was carried on with the usual exactness within the walls of the College. The house of the College of Surgeons seems to have been one of the last buildings held by the insurgents, and Mr. Healy states that on April 30th there were some 200 wounded men in the building.

Scotland.

The annual report of the Scottish National Society for the Prevention of Cruelty to Children stated that while in many cases homes were better owing to the absence of the father on service, in others women whose husbands were away had given way to excessive drinking, but in practically every instance the woman was drinking before. From a statement made at the annual meeting it appears that the preventive work of the society has been remarkably successful. During 1915 in Edinburgh alone 545 soldiers' wives had been under supervision, and it had been possible to save 500 from prosecution. The number of complaints during the year was 7,200; this was 1,653 less than in the previous year, but the welfare of 22,263 children was involved. The report expressed alarm at the great ignorance and carelessness with regard to child life in many quarters, and dwelt on the evil effect upon physical health caused by ignorance, drunkenness, dirt, and neglect. The motion for the election of the honorary secretaries made by Major C. D. Murray was seconded by Dr. James Carmichael, and adopted.

India.

Malaria in Bengal.

Some novel ideas in regard to the prevalence and spread of malaria were enunciated in a lecture given by Dr. C. A. Bentley at the Senate House, Calcutta, on swamps and floods in relation to Bengal malaria. Malaria, he said, was usually associated with the presence of swamps, and in the Punjab and in many other countries the occurrence of floods was followed by an outbreak of epidemic malaria. The physical conditions in Bengal, however, were vastly different from those of the Punjab, and what held good in one part of the country was not necessarily true of another. Bengal was very largely deltaic and swampy, but many swampy countries were practically immune from malaria, as, for example, the marshy country round Alexandria, and—until drainage was begun—the swampy delta round Ravenna in Italy. The explanation of these apparent anomalies was that the larvae of the anopheles mosquito were always found round the edges of pools, streams, etc., but never far from the edge; it was in fact the amount of water edge that governed the output of mosquitos. In Dacca, for instance, the mosquito season occurred during the dry weather, that being the season when there was most water edge; in the monsoon the country was largely inundated, and the water edge was consequently much reduced. Reclamation of land often caused violent outbreaks of malaria, not because there was any poison in the soil, but because until drainage was thoroughly effective ideal breeding places for mosquitos were provided by the land in process of reclamation. In an average Bengal village there were numerous small depressions and hollows, and it was said that these were largely responsible for the prevalence of malaria. Yet in East Bengal, where the conditions as regards physical configuration of the soil were almost exactly similar, there was comparatively little malaria. The true explanation of this paradoxical state of affairs was that it was only in the monsoon season that malaria was conveyed by the anopheles mosquito; a large portion of East Bengal being inundated at that period of the year the number of malarial mosquitos was kept in check. In Central Bengal, owing to the fact that extensive flooding no longer occurred, every little pool during the dangerous months was a breeding place for mosquitos.

Plague in India.

There were as many as 6,628 deaths from plague in the whole of India during the week ending February 5th. Bombay Presidency and Sind and the United Provinces account for 1,721 and 1,628 respectively. Other provincial figures are: Madras Presidency, 431; Bengal, 3; Behar and Orissa, 602; Punjab, 65; Burma, 350; Central Provinces, 703; Mysore State, 162; Hyderabad State, 874; Central India, 80; and Kashmir, 6.

Correspondence.

TIME IN SURGERY.

Sir,—The act of saving "time in surgery" is one that even slow operators can accomplish by avoiding unnecessary pauses, and I agree with Maylard that this is specially desirable in many cases of abdominal section. In fact, apart from the interests of the patient, which are vital, one finds that the practice comes naturally to surgeons who do many operations in a day, if only to save the time of themselves and their assistants. Even small and simple operations, requiring ten seconds, are apt to be extended to as many minutes by the evil habit of dawdling and rambling on the part of some. Quick operating, when it does not come naturally to the surgeon, can be acquired by example, and need not be accompanied by hurried movements. Though I have often erred in operating too slowly, I have also often found occasion to perform rapidly with equal ease.

The first time I attempted pylorectomy I was astonished at the simplicity of the process *in that particular case*, and the short time occupied in finishing it without hurry. Cases differ greatly, and some are easily and quickly done, while others are difficult and exasperating in the time necessarily spent. I have seen abdominal hysterectomy quickly and thoroughly done by surgeons at home and abroad, but never so quickly as, or more brilliantly than, by Doyen, without the slightest hurry, during the Paris International Medical Congress of 1900.

I then made the acquaintance of Professor Alex. R. Simpson, whose untimely death by accident we have had so recently to deplore. It was he who told me of a demonstration to be given by Doyen on August 8th. There was a crowd of surgeons of all nationalities, among them Collins Warren of Boston and Ernest Laplace of Philadelphia. When the audience had collected in the theatre, I found myself at the back, in the blazing heat of the window. Seeing Simpson somewhere in a bad place, Doyen said, "Gentlemen, please make room for our seniors," and placed him with Sir William MacCormac and Reginald Harrison in the middle of the front row, and I slipped in next to Harrison.

Among many operations came the abdominal hysterectomy which we four saw from a distance of under two yards. The operation was done without an instant's pause or the slightest hurry, and finished in about ten minutes, with admirable skill. In one of the intervals, while the folding doors into the corridor were wide open, I noticed a person with a camera photographing the

company. I thought no more of this till some months later, when a friend pointed to what he described as an interesting article in, I think, *Black and White* entitled "In the cause of humanity." On the opposite page was a photographic engraving illustrating the article, in which I saw objects reminding me at once of Doyen's theatre. Then I saw the patient's knees over the edge of his tilted table, and Doyen's back by her side; then Simpson seated in the middle, MacCormac, Harrison, and myself standing beside him, with the rest of the international crowd.—I am, etc.,

RUSHTON PARKER,
Professor of Surgery in the University of Liverpool;
Lieutenant-Colonel 1st Western General Hospital, R.A.M.C.(T.F.).

Liverpool, April 30th.

THE CONTROL OF VENEREAL DISEASES.

SIR,—The main recommendations of the Report of the Royal Commission on Venereal Diseases have been received with remarkable unanimity. The proposal that facilities for diagnosis and treatment should be made freely available for every sufferer has been approved from every side, and I have not heard of any opposition or criticism. The President of the Local Government Board has indicated that at least three-fourths of the cost will be borne by the Imperial Exchequer. The path is therefore clear for general hospitals, universities, and local authorities to make their plans for carrying out the work. Whatever controversies may arise on side-issues, they must not be allowed to obscure this humane, reasonable, and much-needed reform.

With this in mind, may I briefly refer to two points which are, or may be, controversial, and which were raised by the important article in the *Edinburgh Review*, quoted in your issue of April 22nd, p. 597?

The first of these is the suggested compulsory detention of patients in workhouse infirmaries. About this proposal opinions are much divided. It would appear to be advocated chiefly on *a priori* grounds. I have searched the published evidence, and have failed to find any adequate case made out for this departure from the general lines of the report. Would it not be well to postpone any such change until a beginning has been made with the national system of free and voluntary treatment, and until we see what is to be the relation of Poor Law infirmaries to that system?

The second point is prophylaxis. On this thorny question the Royal Commission kept silence, but it is being widely discussed, and thanks are due to you for being prepared to handle it. If the application of simple germicidal remedies within a few hours after exposure to infection proves as efficacious as is alleged, their use amounts to a logical extension of that early treatment on which the Royal Commissioners rightly lay stress. In the case of an individual who had yielded to temptation, few would hesitate to give or advise such treatment. Therefore, where large numbers of men are assembled, it may be right to provide facilities for it. If, however, such provision should convey (as it might if unwisely announced) a false impression that the authorities look with tolerance upon sexual vice, this would be a disgrace to our army now, and a national disaster in the future when the men return to civil life. Such provision therefore makes it even more necessary that men should be told not only the risks of self-indulgence but also the duty and healthfulness of self-control. They should learn that the best soldier and the finest man is he who does not need to use prophylactic measures because he practises continence, which is the only absolute prophylaxis.

There is surely a clear distinction between this disinfection after known exposure, and another method referred to by the Edinburgh reviewer—namely, the so called "prophylactic packet," handed to men before they leave the camp or ship. The latter plan amounts to an admission to each individual who receives a packet that he is not expected to exercise self-control. It is utterly incompatible with any sound moral or physiological teaching, and I cannot see how it can possibly fail to be an encouragement to vice.

Most thoughtful people will agree with the reviewer when he says that any widespread improvement in morals "will be due to moral causes, not to materialistic fear of specific diseases." But improvement in morals is the only radical means of preventing venereal disease, and we stultify ourselves if in efforts to minimize the results of an evil we lose sight of its fundamental cause.—I am, etc.,

London, S.W., April 28th. HELEN WILSON, M.D.

THE "SOLDIER'S HEART" AND ITS RELATION TO THYROIDISM.

SIR,—Besides those with a physiologically normal thyroid there are great numbers of people in whom the secretion of the gland is either more or less deficient, or more or less superabundant. The extremes are, of course, examples of myxoedema and of Graves's disease. But a deficiency or an excess may be present in such minor degree that the subjects thereof, although presenting definite symptoms upon examination, may be more justly looked upon—as, indeed, they pass in ordinary affairs—as members of a type rather than as sufferers from disease.

There is still another variation from normal in which symptoms of hyperthyroidism—especially those connected with the nervous system—are superimposed on a basal and general minor hypothyroid state (*petite insuffisance thyroïdienne*). The explanation may be that certain functions of the gland are directly diminished and others exaggerated by variations in the secretion itself, or—if the thyroid is to be regarded as the master of the whole endocrinous system—that these variations in its secretion lead to an instability of control.

The practical point is that all these people are so little removed from normal that they are readily accepted for the army if fit in other respects, and in my experience the great majority of cases of "soldier's heart" occur in patients belonging either to the "thyroid instability" type described above, or to the type of minor hyperthyroidism. One could with fair certainty undertake to reproduce the condition experimentally in members of these types by subjecting them to circumstances similar to those of the soldier's life, which result in frequent and wide variations of blood pressure—namely, prolonged and sudden physical strain, excessive tobacco smoking, mental anxiety, and shock.

I believe, therefore, that the soldier's heart is usually the outcome of submitting these particular thyroid types to such conditions, and that both the normal type and the pure hypothyroidian are far less likely to suffer.

Some principles in the general treatment of soldiers invalided with this complaint suggest themselves at once: Tranquil life in fresh air, preferably at sea level, with enough amusement to keep them from brooding over past horrors; plenty of bed and sleep—the latter procured, if necessary, by a simple hypnotic; purin-free diet; strict regulation of stimulants, including tea and coffee; restriction of tobacco, especially in the form of cigarettes, which not only, in common with all tobacco, stimulate the suprarenals, but when inhaled have a further and more direct effect upon the heart by irritating vagus terminals.

As regards special treatment, the indications are to improve katabolism and to restore cardiac tone. I know no better method of attaining both objects than by using the interrupted and reversed faradic current in the way perfected by Professor J. Bergonié, by which the skeletal muscles in their entirety may be thrown into rhythmic contraction; varied at the desire of the operator in rate and intensity, without discomfort or fatigue to the patient, without strain upon the heart, and with a beneficial effect upon the muscles themselves. The patients thus obtain the beneficial results of exercise without any effort of will or any draft whatever upon their already enfeebled capital energy, whilst at the same time the heart is helped, by the enormous stimulus to venous return, to deliver a large output against a negligible rise in pressure.

It is extraordinary how during this treatment the most excited heart will settle down in a few moments to quiet regular work, the patient concurrently losing all sense of its irritability. A period of quiescence follows and becomes longer after each sitting, and it is difficult to imagine better final results than are given by this very complete method of physiotherapy.—I am, etc.,

J. S. KELLETT SMITH.

Eastbourne, April 25th.

SIR,—Sir James Barr, in his article on "The Soldier's Heart," emphasizes the need for more calcium in the food of soldiers.

About five years ago I pointed out in the *Hospital* of February 4th, 1911, that there was this great deficiency, and I laid the matter before the Director-General, A.M.S., who replied "that a board was about to sit on the question of food supply, and that my suggestions would be put before them."

Evidently the board did not agree either with the opinions of Sir James Barr or yours truly,

Swansea, April 19th. G. ARBOUR STEPHENS.

THE INGUINAL INCISION FOR INTRASCROTAL AFFECTIONS.

SIR,—The article by Mr. Maylard in your issue of April 22nd (p. 589) is of great interest as a reasoned explanation of the choice of site for the incision in intrascrotal affections. That the choice of the inguinal region in most such cases may not be novel he is careful to point out, and would be the first, as is well known to surgeons here, to welcome information tending to place points of surgical treatment in historical sequence. I therefore take the liberty of giving one or two references on the question.

In an article entitled "Six cases of hydrocele in infants treated by operation," published in the BRITISH MEDICAL JOURNAL of February 22nd, 1913, Mr. James H. Nicoll, surgeon to the Western Infirmary, Glasgow, dealt with the incision discussed by Mr. Maylard. The article was illustrated by a plate with two figures showing the hydrocele sac being pushed up into the inguinal incision. The object of Mr. Nicoll's article was not so much to draw attention to the situation of the incision (since that was made according to his practice of many years) as to give specific instances of the wide scope of operations which might advantageously be performed at an out-patient department. Mr. Nicoll has used the inguinal incision for intrascrotal affections (where the scrotal skin is sound) for about twenty years. I myself have witnessed his use of it in hundreds of cases during the past seven years.

In their *Manual of Surgery* (vol. iii, Operative Surgery, 1913, p. 578), Thomson and Miles quote Winkelmann as recommending the inguinal incision for hydrocele. These authors also recommend it for castration if the skin of the scrotum is not involved in the disease (p. 572).

Beesly and Johnston, in their new *Manual of Surgical Anatomy* (Hodder and Stoughton, 1916, pp. 262, 268) describe the inguinal incision for radical cure of hydrocele, and on p. 266 give it as an alternative to the scrotal incision for excision of the testis.—I am, etc.,

Glasgow, April 25th. CHARLES BENNETT, M.B.

THE FEES OF GENERAL PRACTITIONERS.

SIR,—I think every one will admit that the medical profession has come forward very freely in many directions during the present crisis, but I also think that we should be justified in looking after our own interests a little, both for our own sakes and the sakes of those who are serving, and the present gives an opportunity which will never arise again to do two things—(1) to raise our fees; (2) to teach the public to allow medical men more freedom.

Expenses all around are increasing, while the fees of general practitioners in England remain grossly inadequate, and it is our own fault that they are so. My own fees are as high as the custom of the district will allow, but the other day a small local tradesman came into my surgery, remained fifteen minutes, obtained important advice as regards his health, and a bottle of medicine which cost me at least 1s., and paid me 3s. 6d., which I am sure he thought was quite enough. The next day the same man visited the dentist, remained ten minutes, had two teeth extracted, and willingly paid 7s. 6d. Could I quote a better example to support my plea that general practitioners should raise their fees, so that we might have some prospect of earning enough to retire, instead of dying in harness, as most of us do at present?—I am, etc.,

May 1st. GENERAL PRACTITIONER.

JEJUNOSTOMY AND JEJUNO-COLOSTOMY.

SIR,—Mr. Handley thinks that the procedure I advocate for post-operative faecal or intestinal vomiting—namely, jejunostomy with subsequent restoration of the jejunum—is a more severe one than his proposal of jejuno-colostomy *plus* caecostomy, and quotes a paragraph from my paper in support of his opinion. Quotations divorced from their context are fallacious; he should have added at least the following further quotation:

> It is true that after jejunostomy a second operation to close the opening has to be faced, but this is not such a serious undertaking as might at first sight be thought.

That a risk is incurred is of course obvious; but on the other hand, Mr. Handley's proposal involves a risk in my opinion still greater—the performance of an intestinal anastomosis during a period of acute obstruction.

Mr. Handley says that caecostomy openings often close spontaneously; they do, but not by any means always. But what of the opening between the jejunum and transverse colon? Does that close spontaneously? And if it does not, to what extent is it injurious to the patient? These are questions which cannot be answered on one recently operated on case.

Mr. Handley claims that his proceeding improvises a physiologically complete intestinal canal. An intestinal canal consisting of the oesophagus, stomach, and a few inches of jejunum and colon is not physiological; neither is a communication between the jejunum and colon. He misuses the term.

He assumes that the successful result he achieved in the case published in his recent paper was due to the possession by the patient of this "physiologically complete intestinal canal." I hold that it was due to the fact that in the making of it he drained the jejunum, and that there is really no difference therefore in the *rationale* of the two procedures.

Our difference of opinion seems to me to be chiefly due to a different conception of the primary agencies underlying the symptoms of acute intestinal obstruction. As I understand him, he believes them to be situate outside the bowel (peritonitis), whereas I believe that it is to changes occurring inside the bowel that the symptomatology must be primarily ascribed, and that peritonitis is merely a common accompaniment. Thus all the symptoms may be present without any peritonitis, and, conversely, the most profound peritonitis is often seen without any of the symptoms of intestinal obstruction.—I am, etc.,

London, W., May 2nd. VICTOR BONNEY.

WOUNDS OF JAW AND FACE.

SIR,—The papers and discussions at the annual general meeting of the British Dental Association on June 15th, 16th, and 17th (to be held at the house of the Royal Society of Medicine) will be entirely devoted to the important subject of war injuries and gunshot fractures of the jaws and the best methods of treatment. There will also be an exhibition of appliances and splints, improved and adapted for the most efficient use under the new war conditions.

May I, by your courtesy, appeal to those of your readers who have been treating cases of jaw injuries to contribute models, appliances, splints, skiagrams, etc., to the exhibition? It is particularly requested that in sending exhibits the following points should be observed:

1. The case containing the exhibit should include a note of the exhibitor's name and address, and a list of all the exhibits contained in the case.
2. That each part of the exhibit should have the exhibitor's initials attached to it by means of a small piece of gummed paper.
3. That all exhibits should reach the house of the Royal Society of Medicine, 1, Wimpole Street, W., not later than Friday, June 9th.

—I am, etc.,

F. N. DOUBLEDAY,
Honorary Secretary, Museum Committee.

19, Hanover Square, W., May 1st.

THE New York Academy of Sciences will celebrate the centenary of its foundation in May, 1917.

Obituary.

WHARTON PETER HOOD, M.D.St.And., M.R.C.S., L.S.A.

DR. WHARTON HOOD died on April 27th, aged 82, after a short illness, at his residence in Montagu Mansions, Portman Square, where he had lived in retirement for some years. He was the son of Dr. Peter Hood, who died in 1890, aged 81. Wharton Hood received his professional education at King's College, and held the office of house-surgeon to the hospital. He took the diplomas of M.R.C.S. in 1855 and of L.S.A. in 1856. The degree of M.D.St.And. was conferred upon him in 1862.

Dr. Wharton P. Hood will mainly be remembered for an announcement which he made in his *Bone-setting (so-called) and its Relation to the Treatment of Joints Crippled by Injury, Rheumatism, etc.*, published in 1871, four years after the appearance in print of Sir James Paget's lecture on "Cases that bonesetters cure." Dr. Wharton Hood explained in the introduction to his essay that six years previously his father, Dr. Peter Hood, in conjunction with Dr. Iles of Watford, attended Mr. Hutton, a well-known bonesetter of the day. Dr. P. Hood declined to take a fee, as Hutton had been of service to so many poor people, upon which Hutton offered to instruct him in the details of his method of bonesetting. Though this offer was declined by Dr. Peter Hood owing to stress of work, it was accepted by his son. As long as Hutton lived, Dr. Wharton Hood declined to publish, or even discuss with friends, the procedures by which Hutton treated stiff joints, but he gained additional experience while attending his poor patients during a second illness from which Hutton suffered, and after the bonesetter's death published what he had learnt. In 1875 Sir James Paget, in a new edition of his *Clinical Lectures*, said that "Dr. Hood had thoroughly learned the art, and practises it skilfully," and advised in his discourse on bonesetters' cases, that "Dr. Hood's essay should be read on all these cases, not only for the manual treatment which he teaches, but for the signs which he indicates as decisive in the choice of cases."

In 1902 Dr. Wharton Hood issued a more complete work, *The Treatment of Injuries by Friction and Movement*, in which he explained yet more fully the empirical methods which he had learnt from Hutton, and said that to the last Hutton honestly believed that the snapping noise, heard when a stiff joint was forcibly made movable, meant the reduction of a dislocation.

Dr. Wharton Hood was honorary surgeon to the Royal Academy of Music, and to two Masonic charities, and was at one time surgeon to the Royal Bucks Militia.

THE LATE DR. T. COLCOTT FOX.

DR. J. J. PRINGLE (London) writes: There is, I can confidently say, no doubt that Colcott Fox influenced British dermatology more powerfully than any of his contemporaries, and almost all of our most prominent dermatologists of the present day must be included among his pupils. Their devotion to him was justifiably unbounded, and by them shall most of his teaching be handed down to posterity. Colcott Fox's name is not associated with any startling discovery or linked on to any special disease; he wrote no popular textbook; he was too supreme and conscientious an artist to condescend to the perpetration of any professional "pot-boiler." But he traversed and illuminated the whole length and breadth of the field of dermatology and touched no subject which he did not adorn. His consummate mastery of technical detail did not militate against his breadth of conception; he saw both the trees and the wood. I was associated for fifteen years with Colcott Fox as co-secretary of the Dermatological Society of London, and during that time I learnt to appreciate his many qualities of heart and mind, his wonderful toleration of everything except humbug, pretension, or "unstraightness," and the extraordinary depth and many-sidedness of his knowledge. Had he cared to do so, Colcott Fox might have claimed priority of observation of many conditions which have been accredited to others, but his almost overwhelming generosity constrained him from doing so. No more lovable man ever existed; his friends were many and true, and their hearts go out in deepest sympathy to his mourning widow, who guarded and guided him with such exquisite tenderness throughout the dark days of his failing years.

DR. ARTHUR WHITFIELD (London) writes: I knew the late Dr. Colcott Fox since 1892, and for many years afterwards somewhat intimately. His personality was such that it seemed always to inspire a deep affection for him among all those whose privilege it was to work with him. There is no doubt that his teaching has had a most important influence on the English school of dermatology owing to his acute clinical observation, and his wonderful capacity for imparting his knowledge and method to his pupils. To watch him trace out the development of a difficult eruption was a wonderful object lesson in reasoning and observation. Nothing seemed ever to escape his eye, and his touch would tell him almost unfailingly the nature of the tissue beneath his finger. He had also a vast knowledge of medical literature, and this was always at the service of his younger colleagues. In many cases the best clinical descriptions of the less common diseases of the skin are still those written by Colcott Fox. Never a showy man he was almost worshipped by his patients, and at both the Westminster and Paddington Green Hospitals, where I had long opportunities of working with him, it was a recurring pleasure to watch his cheery and sympathetic treatment of them. Outside his profession he was widely read in most good English literature, and it was a wonder to me how his memory could retain so accurately all the various oddments with which he filled it. At heart he was always a lover of the country, and I well remember his saying to me that a Hampshire lane with the wild rose (which he liked to call by the old name of eglantine) in blossom appealed to him as the most beautiful sight he knew. He was a thorough sportsman, a first-class cricketer and oar in his younger days, an excellent skater, a good shot, and in later years a golfer above the average. Always kindly and considerate, the only thing I knew that could rouse his temper was a mean or contemptible action. By the death of Colcott Fox England has lost one of her finest types of gentleman, and dermatology one of its best exponents.

DR. FREDERICK LEVER of Montpellier Lodge, Harrogate, died on April 15th in his 69th year. He was the son of Mr. Benjamin Lever of Blakesley, Northamptonshire, and was educated at Epsom College and Guy's Hospital, where he took the Sands-Cox Scholarship in 1882 and the B.Sc.Lond. with honours in the same year. In 1885 he took the diploma of M.R.C.S. and the degrees of M.B., B.S.Lond. For thirty years Dr. Lever practised in Harrogate, and from first to last was most zealous in urging its advantages—social and medical—as a spa. As late as in 1908 he wrote an article on the properties and therapeutic uses of the Harrogate waters in the *Balneological Journal*. From the commencement he was a prominent member of the Harrogate Medical Society, of which he was twice president. He leaves a widow, one son, and one daughter.

DR. THÉODORE GUILLOZ, professor of electro-therapy in the Medical Faculty of Nancy, recently died at the age of 48. He took his degree at that university in 1893, and became *agrégé* in 1895. He took up radiology as a speciality and settled in Paris, where he was very successful. But he fell a victim to his zeal in working at the improvement of *x*-ray apparatus and the practical applications of the method. He had to submit to amputation of several fingers, and was awarded the Carnegie gold medal as a martyr of science. In 1906 he was appointed professor at Nancy, and in recognition of the value of his inventions shown at the exposition held in that city in 1909, he received the Cross of the Legion of Honour. On the outbreak of the war he established seven stations of radio-stereoscopy at Nancy; early in 1915 he was appointed chief of the service of radiology of the 20th and 21st legions, and quite recently he was named médecin-major de 1re classe. Although very ill he went on with his work, and devised an apparatus for the localization

of embedded projectiles and a needle for finding the foreign body. He died at Lyons, where his duty had called him.

LIEUTENANT-COLONEL HENRY JOSEPH O'BRIEN, R.A.M.C. (ret.), died at Queenstown on April 16th. He was educated at Trinity College, Dublin, where he graduated A.B. and M.B. in 1864, and B.Ch. in 1865. He entered the army as assistant surgeon on October 2nd, 1865, became surgeon on March 1st, 1873, surgeon-major on October 2nd, 1877, and retired as brigade surgeon lieutenant-colonel on June 30th, 1896. He served in the Afghan war in 1878–80, receiving the medal.

The Services.

INDIAN MEDICAL SERVICE.

OFFICERS RETAINED.

THE Government of India has decided that lieutenant-colonels of the Indian Medical Service specially selected for increased pay, who are retained in the service on account of the war after attaining the age of 55, should be treated as supernumerary on the list, and that promotions should be made in their place with effect from the dates on which they attain that age. In the case of officers who have been granted extensions to complete thirty years' service for pension, and who are similarly retained in the service, promotion will be made from the date following that of the expiration of the period of extension.

EXCHANGES.

M.O. Wessex Division, at present under canvas at Hursley Camp, would like to exchange with Territorial M.O. serving in Portsmouth district. Address No. 1750, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

M.O. in Field Ambulance (T.F.), near London, gazetted Captain January, 1916, wishes exchange with medical officer on active service in any capacity. Address No. 1700, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF EDINBURGH.

AT a meeting of the University Court on April 24th it was resolved to accept the bequest by Sir William Turner of his bust by Mr. Herbert Hampton, and to place it, as the testator requested, in the Anatomical Museum of the university near that of Professor John Goodsir.

The Court finally approved the regulations already approved by the Senatus for the prize for women medical students to be paid out of the balance of the funds received from the Scottish Association for the Medical Education of Women. It will be awarded to the M.B., B.S. considered the most distinguished woman student of the year.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.

A COMITIA was held on April 27th, Dr. Frederick Taylor, the President, being in the chair.

Admission of Members.—The following candidates, having passed the required examination, were admitted Members of the College:

Alexander Greig Anderson, M.D.Aberd., Rowland Hill, M.D., Queen's Univ., Belfast, William MacAdam, M.D Glasg., Henry Harold Scott, M.D.Lond., L.R.C.P.

Licences.—Licences to practise physic were granted to ninety-nine gentlemen who had passed the requisite examinations.

Election of Fellows.—The following Members were elected Fellows of the College:

Michael George Foster, M.D.Camb. (Harrogate), John MacLeod Hendrie MacLeod, M.D.Aberd., Henry Lawrence McKisack, M.D. Roy. Univ., Irel. (Belfast), Joseph Arthur Arkwright, M.D.Camb., Charles Hewitt Miller, M.D.Camb., Harold Waterlow Wiltshire, M.D.Camb., Charles Ernest Lakin, M.D.Lond., Edward Alfred Cockayne, M.D.Oxf.

Resignation of Representative.—A letter was received from Sir Wilmot Herringham resigning the office of representative of the College on the Governing Body of the University of Sheffield.

CONJOINT BOARD IN SCOTLAND.

THE following candidates have been approved at the examinations indicated:

FIRST EXAMINATION.—J. Campbell, J. L. Coventry, Agnes M. Hill, E. R. Lloyd, J. C. Meek, W. M. Reid, F. J. Stevenson, Marguerite M. I. Swanson.

SECOND EXAMINATION.—R. G. Bell, S. H. Waddy, M. J. Woodberg.

THIRD EXAMINATION.—R. Austin, A. Balfour Black, D. M'K. Black, J. Calder, Jean M'M. Crawford, R. P. Crawford, J. T. Dier, G. A. Grandsoult, R. D. Howat, Ll. W. Hughes (with distinction), E. G. Jones, J. Michaelson.

FINAL EXAMINATION.—W. P. H. Lightbody, J. P. Mathie, J. R. B. Robb, A. Morison, T. Jackson, A. Smith, jun., J. M'Cartney, R. H. Rattray, T. M. Metcalfe.

Medical News.

DR. JOHN WYLLIE, Emeritus professor of medicine in the University of Edinburgh, left estate valued at £15,589.

IT is proposed to reorganize the hospital department of Sing-Sing prison, New York, so as to include a clinic and a bureau for medical research.

AT the meeting of the Medico-Psychological Association to be held at 11, Chandos Street, W., on May 16th at 2.45 p.m., a paper, illustrated by lantern slides, will be read by Dr. Orr and Major Rows, R.A.M.C., on experimental toxic lesions in the rabbit's brain and their bearing on the genesis of acquired idiocy and imbecility in man.

As a tribute to the memory of Miss Edith Cavell, the name "Mount Cavell" has been given by the Canadian Government to one of the peaks in the Canadian Rockies. Mount Cavell rises to a height of over 11,000 feet, and is situated in the province of Alberta, near the famous Jasper Park.

THE Director-General of the Army Medical Service will preside at a meeting to be held at the Royal Army Medical College, Grosvenor Road, S.W., on Wednesday next at 3 p.m. in connexion with the proposed formation of benevolent societies for the benefit of families of officers and other ranks of the medical services auxiliary to the regular Royal Army Medical Corps—namely, the Special Reserve, the Territorial Force, and New Army. It is intended that funds shall be raised by voluntary subscriptions, and it has been proposed that each branch of the service should appoint a committee of five to seven members to administer its own funds. It is hoped that as many officers as possible will attend the meeting.

MEDICAL men share with other users of motor cars in the difficulty of obtaining chauffeurs, but it is a more serious matter for them, since the medical car is not merely a convenience or a luxury, but a necessity for the proper conduct of practice. Numerous inquiries have been received by the British Medical Association, and it has been ascertained that the Automobile Association and Motor Union have a list of men eligible as chauffeurs. Some of them are men who have been discharged from the army, others are Belgians, and nearly all are ineligible for service. Inquiries should be addressed to the Engineers Department, Automobile Association and Motor Union, 8, New Coventry Street, London, W. It is particularly requested that if any engagement is made as a result of such inquiry the Engineers Department should be informed.

AN exhibition of Japanese charms, amulets, votive offerings, and objects of medical interest was opened at the Wellcome Historical Medical Museum on May 4th. The collection, which is lent by Dr. W. L. Hildburgh, a well-known American antiquarian, consists of objects in popular use in Japan for securing protection against evil spirits and against accidents of all kinds. The collection of charms used in the cure and prevention of illness and in connexion with pregnancy and childbirth is particularly numerous. The votive offerings presented to shrines in gratitude for relief obtained are mostly symbolical paintings of various diseases. There is a small section of phallic emblems, and many specimens of printed paper charms, issued by Buddhist or Shinto temples throughout Japan, intended to protect against specific troubles. The collection, though not large, offers not a few features of interest to doctors as well as to archaeologists and anthropologists. It also makes an appeal to those to whom nothing human is foreign as representing in quaint and pathetic form the efforts of man to safeguard himself against the dangers in which he lives and moves and has his being.

OWING to the great demand for munitions in Austria, workshops have been overcrowded and overtime has been worked. The women and girls swept into this industry have not proved as immune to the wear of industrial life as the old factory hand. Professor Oppenheim (*Wien. klin. Woch.*, November 25th, 1915) states that the cases of industrial poisoning in munition factories were most numerous between the outbreak of the war and April, 1915. Their number was then greatly reduced by hygienic reforms and a more careful adaptation of employment to capacity. Professor Oppenheim gives details of twenty-six cases of dermatitis, most of them from the same factory in Vienna. In eighteen of these the disease was caused by fulminate of mercury. In a few cases the symptoms were traceable to the cleaning and polishing of metals with petroleum, ammonium chloride, acids, turpentine, and benzol. In a certain number of cases, alcohol, antimony, potassium chlorate, glue, and nitric

acid were suspected of aggravating the dermatitis. In the workers suffering from mercurial poisoning, the principal symptoms were oedema of the face and of the backs of the hands; a nodular, vesicular, or pustular eruption, which was less common, was apparently the result of a relatively slow process of poisoning. Oedema of the face was often preceded by inflammation of the eyelids and lips, and mercurial stomatitis was not rare. It was, however, ulcerative only in one case. The majority of the patients were young women, and in many of the cases mercury was found in the urine. All the symptoms disappeared quickly when the patients were relieved of their work, and they were fit for work again in a week or two. When systematic dental hygiene was adopted, and other precautions taken to prevent the absorption of mercury by the skin and mucous membrane, the number of cases began to wane, but in the winter began to increase again owing presumably to less efficient ventilation during the colder weather.

Letters, Notes, and Answers.

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Mediaecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

L.R.C.P. asks for advice in the treatment of a case of leucoderma.

INCOME TAX.

A. B. explains that his partner died in February, 1915, that the executors refused to sell the book debts, and that he has paid income tax on all the receipts for 1915. He asks whether he can deduct income tax when handing over to the executors those receipts to which they are entitled.

*** The answer is in the negative, as from the date of dissolution of the partnership—presumably in February, 1915—"A. B." appears to have become the sole proprietor of the practice, and thenceforward was liable to income tax on the full annual profits of the practice, measured either by average cash receipts or by a year's bookings less bad debts. He has accordingly paid for the financial year 1915-16 no more tax than is properly due from him as proprietor of the practice As regards the debts now being realized and handed over to the executors, the view of the Revenue authorities appears to be that, on the assumption that a full normal income has been assessed in the past, such receipts have already been subjected to income tax, and are not taxable in the hands of the executors.

G. D. K. B. is engaged on work somewhat in the nature of "military duty," inasmuch as he has undertaken additional civil work to release another surgeon for service, and, in addition, is assisting in the work of the local Voluntary Aid Detachment Hospital under military authority. He inquires whether he can on these grounds claim any special rebate or allowance in respect of income tax.

*** The question is dealt with in Section 13 of the Finance Act, 1914 (Session 2), by which the relief in question is confined to members of the military or naval forces of the Crown, or persons serving in any work *abroad* of the British Red Cross Society or of the St. John Ambulance. From the particulars furnished by our correspondent it would appear that he could not maintain a claim under the section referred to.

PETROL LICENCE DUTY.

T. H. E. occasionally takes his wife and two children with him on his rounds. He has been told by the local police authorities that if this continues the *full* licence duty must be paid, their view apparently being that only the chauffeur and, as occasion may arise, a nurse can properly be carried in a car paying half licence duty.

*** Section 86 (4) of the Finance (1909-10) Act, 1910, provides that the allowance shall be granted "if a duly qualified medical practitioner proves to the satisfaction of the Commissioners or council by whom the licence is granted that any motor car kept by him is kept for the purpose of his profession." We cannot see that the occasional use of the car as mentioned by our correspondent could possibly disprove—what, indeed, seems fairly obvious—that the car is "kept for the purpose of his profession." Perhaps "T. H. E." may feel inclined to submit a full statement of the facts to the Commissioners of Customs and Excise, Custom House, E.C., a course which would, no doubt, free him from the present irritating position.

JUNKER ON JAPANESE OBSTETRICS.

A CORRESPONDENT wishes to know if any reader of the JOURNAL possesses a copy of a work by Dr. F. Junker on Japanese obstetrical instruments used before the introduction of European appliances, or knows where that book can be seen. It was prepared by Dr. Junker when he was principal of a medical school in Japan, and some instruments were presented to the museum of the College of Surgeons in 1878 by the author, with a copy of his treatise, but it has been lost.

ANSWERS.

PRURITUS OF THE FACE.

DR. G. W. SEQUEIRA (London) writes: In answer to "Country Doctor's" request (p. 640) I would suggest that, as there are visible changes in the skin—"subcuticular roughness"—the pruritus is not a pure neurosis. It is probably allied to Hutchinson's summer prurigo, which generally begins in childhood and lasts into the twenties, and affects the face, ears, neck, or arms. The itching sensations are due to the irritation of papillary nerves by the suddenly developing, although extremely minute, inflammatory product (serum). In this circumscribed prurigo the patients are often nervous, anxious, and worried, and it is sometimes associated with asthma, hay fever, and other bronchial affections, as well as with uterine disorders. Thus any derangement of the general health which may be present must of course be corrected on general principles. An ointment of beta naphthol, 5 per cent. strength, rubbed on the affected parts is likely to prove useful.

LETTERS, NOTES, ETC.

A VOLUME entitled *Collected Papers on Analytical Psychology*, by C. G. Jung, M.D., LL.D., authorized translation edited by Dr. Constance E. Long, has recently been published by Messrs. Baillière, Tindall, and Cox. The text occupies 377 pages. In a list of books issued by Messrs. Lewis the volume is, we are informed, described as translated by Dr. Constance E. Long. On this Dr. M. D. Eder writes to state that "of nine papers (263 pages) especially translated from the German for this work six (227 pages) were done entirely by my wife and myself; a further two (26 pages) were completely revised and partly retranslated by myself." We have received from Dr. Constance Long a note in which she writes: "My share in the book is merely that of editor; only one paper, and that from the French, being translated by me. Five different persons have contributed translations from the German, but, as Dr. Eder says, he and his wife have done the lion's share, for which they have been paid the usual translator's fees."

MEDICAL REFEREES TO INSURANCE COMPANIES.

A MEMBER writes: May I call attention to a system which seems to me ridiculous—namely, that however many medical practitioners there are, say, in a small town or country district, some insurance companies will only appoint one solely as their medical examiner? If A. holds such an appointment, and B. and C. are practising in the same town, it is clear to all that if, wishing to join a certain society, the candidates must be examined by A., though they may be patients of B. or C., which I hold to be most unfair to the latter. Now that the yearly meetings of branches are coming on, it would be a good thing to have the matter placed on the agenda and discussed. Perhaps local secretaries will take the hint, and my letter may bring forth the views of others on this subject.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
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A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.